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TAKEOFFS

Model Aviation

July 2013 • Volume 39, Number 7

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E-flite Apprentice S 15e RTF

FEATURES

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For full product details, visit E-fliteRC.com

SPECIFICATIONS

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Flying Weight: 49.0 oz (1390 g)

Find the secret to fearless flight at FLYSAFERC.com



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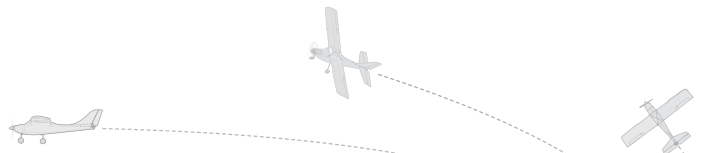
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ON THE COVER: The throttle is smoothly advanced to full power at the start of the takeoff roll while holding slight up-elevator. As the aircraft accelerates, the pilot reacts to any course deviations using the rudder. After the airplane leaves the ground, the elevator input is lessened and the focus switches to keeping the wings level during the climbout.

Although this description isn't as exciting as the real thing, the pilot needs to be comfortable with the process. You don't have to be a veteran flier to take off like one when you understand the mechanics involved. To learn how to master the takeoff, see page 27.

Cover photo by Jennifer Orebaugh.

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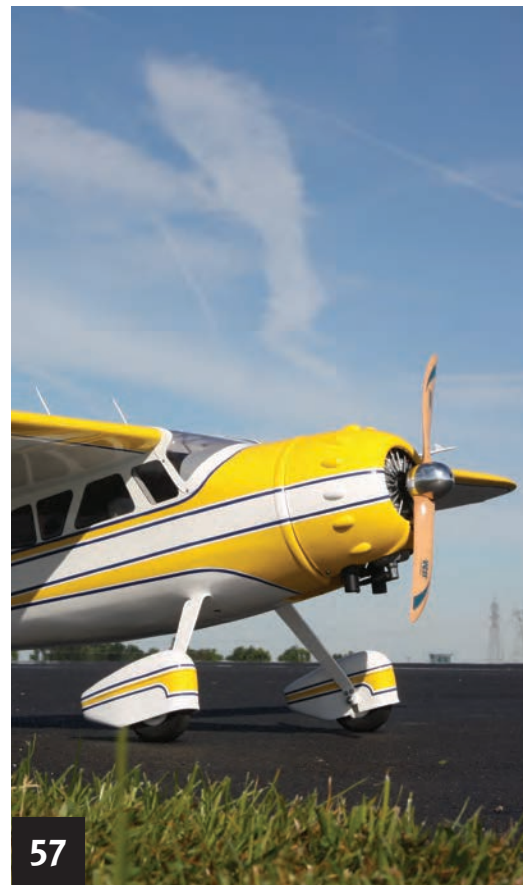
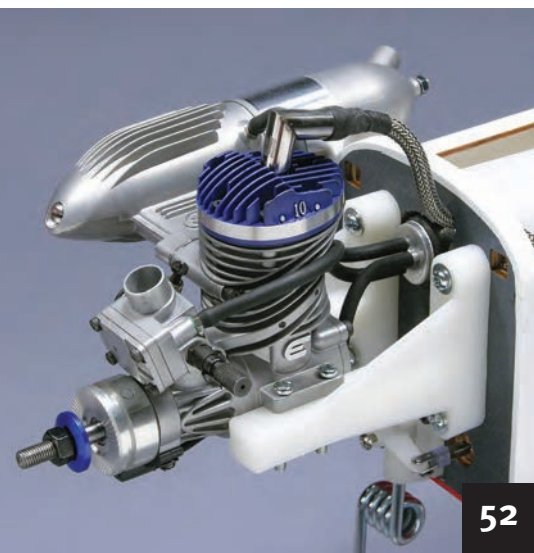
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Fly like a PRO



After years of maneuvering the sticks and analyzing set-up, you become the machine. Feeling bounce-back and the effects of air pressure become as natural as knowing the adjustments to counter it. This connection doesn't just happen on its own; it takes practice, dedication and a little support from the pros. A Main Hobbies.com



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■ EDGE 693mm Premium Carbon Fiber Rotor Blade Set [RVCLE693FB]

■ ProTek R/C 250S Digital Hi-Speed Helicopter Tail Servo [PTK-250S]

■ Scorpion HKIII-4035-500 Brushless Motor (4600W, 500kV) [SCP-HK3-4035-500KV]

■ JR 11X 2.4GHz 11-Channel DSMX Radio System w/R921X Receiver [JRP1100X]

■ ProTek R/C 2S Li-Poly 20C Battery Pack (7.4V/2100mAh) [PTK-LP-2100-2S20]

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AMA and the FAA *should* sign an agreement within the next 90 days

Our activities on behalf of AMA in Washington, D.C. have been productive. A meeting with Jim Williams, manager of the FAA Unmanned Aircraft Systems Integration Office, and his staff proved to be positive.

Unless some unexpected roadblocks emerge, the Academy and the FAA *should* sign an agreement within the next 90 days. I extend praise to Mr. Williams and his department for their willingness to understand our needs and work with us in a positive manner.

Another effort in Washington was a meeting with the Senate Aviation Subcommittee staff. The discussion focused on the difference between models and drones. This issue will likely be our dominant focus in the coming months.

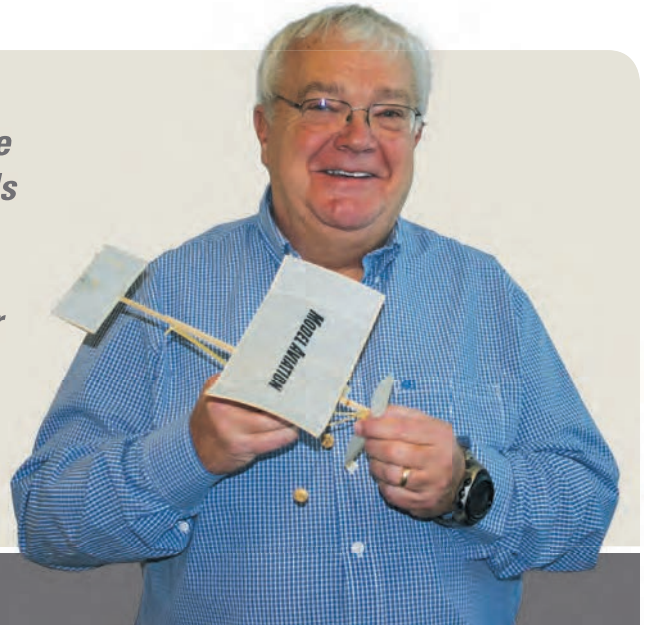
Although the difference is really noncommercial use and where/how we fly, helping others understand the issues can become complicated. I am sure you will hear more about this topic.

We also visited the office of Indiana Senator Joe Donnelly. Senator Donnelly is new to the Senate and our desire was to inform him of the Academy's value and needs. His staff was receptive and our efforts should prove to be quite cooperative.

The AMA's mobile educational presentation trailer is on the road! Photo by Rachelle Haughn.



... the difference between models and drones. This issue will probably be our dominant focus in the coming months.



On the international scene, I attended the FAI Aeromodelling Commission (CIAM) Bureau and Plenary meeting. The reason for the annual meeting is to establish rules for international competition. This year the F3A (Aerobatics), F3B (Gliding), F3C (helicopters), and F3D (Pylon) disciplines were the focus of our representation.

The meeting's outcome met most

of our expectations. Unfortunately a muffler rule was passed that will affect Control Line competition.

Thanks to the National Society of Radio Controlled Aerobatics and the League of Silent Flight for financially supporting their representatives. The funds invested help ensure adequate representation.

The AMA education trailer is back in action. The mobile educational presentation contains several flight simulators and videos to entice potential modelers into our great hobby.

One of the trailer's first adventures was to the Southeast Electric Flight Festival (SEFF) where AMA's presence was warmly received. Thanks to Mac Hodges and his crew for the great hospitality.

If you are interested in scheduling the unit to come to your area, please contact Education Director Bill Pritchett via email at billp@modelaircraft.org or call AMA Headquarters at (765) 287-1256, extension 515. 🚚

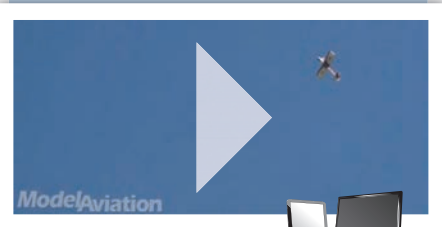
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Inaugural Multirotor Challenge

www.ModelAviation.com/multirotorchallenge2013

Watch controlled lifts, Pylon Racing, stabilization, and other video highlights from the event.



Meridian 10cc ARF

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Readers share their comments and flight simulator tips from May's flight simulator article. www.ModelAviation.com/simulator2013

f Allen Martin: [With] Phoenix, it's not hard to take panoramas of your home field and insert those as a flyable venue in the game. And there's online play. Pretty much makes it the winner for me.

f Flyin' Ryan RC: Very informative info about RC flight simulators.

f Scheer Bros. Hobbies: If you are in the market for a simulator, this is a great starting point to help find the right one for you.

MA Toby Winters: I kinda wish the article could go into more detail. The video definitely helped show off some of the different features.

f Curt Olson: Maybe you could also include a very brief reference to FlightGear, which is more focused on full-scale aviation, but is open source and completely free to download.

YT N8904V: Nice review.

f Scott Sautter: I learned on an FS one. Best physics in the business. Not enough updates.

f Larry Launstein Jr: ... any Windows-based flight simulator will work on a Mac as long as you have the more recent Intel duo-core processors and more recent operating systems—Leopard on up—which has Bootcamp built in to divide your hard drive into a Mac and Windows drive.

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Model aircraft on television

Does it pique your interest when you see model aircraft on TV? Maybe you saw the recent "The Lives of Others" episode of "Castle," where the star, Nathan Fillion, is flying an RC helicopter while at home recovering from an injury.

Helicopters were at the center of an entertaining Velveeta commercial focused on a helicopter pilot in the mall. Jet Blue partnered with GE and produced a nice commercial and print ad that included RC airplanes.

Although these examples portray the hobby in a generally favorable light, other times RC aircraft are used to add humor or drama.

In the episode "Come Fly with Me" on "Modern Family," Ed O'Neill, is seen with an RC Corsair and convinces Ty Burrell to go to the flying field with him.

Ed's character buzzes Ty while trying to fly through a hula hoop and ends up crashing into Ty's face. Immediately after the accident, Ed seems to be more concerned about the damage to his aircraft than Ty's injury.

Then there is the example that led me to this topic. It can be found on "Castle" in the episode "The Human Factor." Here is the plot summary from IMDb:

"When Homeland Security inexplicably seals the crime scene of a car bombing, Castle and Beckett find themselves with two mysteries on their hands: who murdered the victim, a government whistleblower, and why are federal agents trying to take over



Helicopters were at the center of an entertaining Velveeta commercial focused on a helicopter pilot in the mall.

the case? The plot thickens when they discover that the victim wasn't killed by a car bomb but by a missile from a military drone."

Although I didn't watch the entire episode, I *did* see the clip where authorities paid a visit to one of the suspects, who happened to be a modeler with several recognizable RC aircraft in his workshop.

On the commercial side, I remember Saturn using an RC airplane to illustrate the resilience of its dent-resistant side panels by crashing the model into one of its cars.

I've only scratched the surface of model aircraft's presence about television with these few examples, good and bad. I'd like to hear your thoughts about their portrayal on TV and what affect, if any, you believe it has on our hobby. 🚁

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If you have a letter to the editor, please submit it to MA Editor-in-Chief Jay Smith at 5161 E. Memorial Dr., Muncie IN 47302, or email to jays@modelaircraft.org.

Flight Simulator Roundup

Good evening Jay,

Just finished reading your article on flight simulators. Very interesting and a great article. However, for those that can't afford one of the three you wrote about, here is my solution.

I have been using Clearview Flight Simulator for over three years. Don't know if you ever heard of that simulator, but it only costs \$39. You *do* have to provide the transmitter and my Esky transmitter works perfect. If you have time, take a look at it at <http://rcflightsim.com>.

—Rex Williams Jr.
Mather Aerospace Modelers
Sacramento, California



Competition Driven

Dear Gordon Buckland,

I agree completely with your assertion in the May issue of *MA* that competition is indeed driving RC sailplane design and technology. But I question, where are we driving to? Does the average Soaring enthusiast really want or need a \$2,000 carbon super ship that launches to the moon and can be dorked like a pile driver, but that any old SD7037 relic can thermal right through? Yes, we have arrived at this point because of competition, but all our contest formats are fundamentally flawed,

emphasizing launching and dorking instead of thermal soaring.

What we desperately need is a contest format with a graduated high-launch penalty where the pilot who maxes from the lowest launch wins the round. And a sliding requirement in the landing task that forces the pilot to control both the position and the energy of the plane. Then competition will drive the development of as yet unimagined super thermal machines instead of the launch rockets of today.

—Mark Hauschild



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Our Mission

The Academy of Model Aeronautics is a world-class association of modelers organized for the purpose of promotion, development, education, advancement, and safeguarding of modeling activities.

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2.4 JR conversion Combo	\$69.00	80541	4.8-6	0.4/11	46x26x14.8	2000 2.4Ghz
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Dymond 2.4 6 ch receiver	\$34.00	80536	4.8-6	0.46/13	46x26x14.8	2000 2.4Ghz
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Membership news and updates
from AMA Headquarters



Raymond Beach Smith

Raymond Beach Smith, founder of Hobbies Aloft, passed away at the age of 67. Born August 23, 1945, Ray was from a family of pilots. His grandfather was one of the first flight surgeons in World War I and his father was a B-17 pilot who flew more than 100 missions.

Ray started building and flying RC airplanes in his youth. He attained a

degree in aeronautical engineering from California Polytechnic State University. He was a Vietnam-era veteran and worked in flight testing at Edwards Air Force Base, Point Mugu, and Fallbrook Naval Station before becoming a teacher.

In 1993, Raymond launched Hobbies Aloft in Marina, California. Through this business he taught hundreds of people to fly, taught local youth classes, and was a consultant on several scientific projects.

Ray valued designing and flying RC airplanes and had recently obtained his

AMA Thanks Its Lifetime Supporters!

The Academy recently welcomed Life Members Joseph F. Nemecek, Algonquin IL; Treven C. Baker, Santa Cruz CA; Harry E. Deboer, York PA; Brigg G. Lewis, Saint George UT; Anthony Brewer, Shakopee MN; Sean Reigle, Laguna Hills CA; Robert J. Defalco, Wyckoff NJ; Joseph R. Burrill, Herkimer NY; Andrew L. Prestridge, Ojai CA; and Edward G. Bookwalter, Putney VT.

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

—AMA Membership Department

pilot's license. In addition to his passion for flying, Ray enjoyed surfing and was an avid animal lover who rescued more than 50 cats, dogs, and a wide variety of other animals.

FREQUENTLY ASKED QUESTIONS: AMA's Safety & Member Benefits Department

The Safety & Member Benefits department handles a variety of programs. Contact us when you are looking for information about:

- General insurance questions, reporting an accident/filing an insurance claim
- Chartering an AMA club/chapter
- Obtaining insurance for a flying site
- AMA's Turbine Program
- AMA's Large Model Airplane Program for models exceeding 55 pounds
- Safety Code clarification
- Introductory Pilot Program

Insurance-Related Questions:

Q: *What insurance benefits are included with my membership?*

A: Three separate insurance policies (for modeling-related incidents) are a benefit of your AMA membership (excludes Park Pilot Program membership). The Liability policy has a \$2.5 million limit and covers

incidents involving Property Damage and Bodily Injury. The Medical policy has a \$25,000 limit and covers self-inflicted modeling-related incidents. The Fire, Theft, and Vandalism (FT&V) policy, which has a \$1,000 limit, is the only one that covers model airplanes and accessories when damaged by those means.

The Park Pilot Program includes only liability coverage for up to \$500,000; it does not include the Medical or FT&V policy. You can find an insurance summary for individual members at www.modelaircraft.org/files/500-a.pdf.

Q: *Somebody told me that my AMA insurance is effective only when I'm flying at a chartered club's field. Is this true?*

A: No. AMA coverage is not limited to flying at a chartered club field. It also applies to model operation on private or public property. You can find this information on the welcome letter attached to your AMA card.

Q: *I just read that AMA's insurance policies are in excess to my homeowner's policy. Is this true? If so, why?*

A: All of AMA's policies are in addition to any other applicable insurance you

Subscribe to NatsNews today!

It's time to dust off those wings, tweak your engines, and stock up on extra propellers because the Outdoor Nats will soon begin! The Outdoor Nats, held at the AMA in Muncie, Indiana, kicks off June 25 with RC Scale Aerobatics.

Keep up with all of the latest exciting action by subscribing to *NatsNews*! Visit www.modelaircraft.org/natsnews and click on "Subscribe" to sign up. You will be notified when the daily newsletter, filled with reports, photos, and scores, is posted.

Don't forget to watch for coverage of the Indoor Nats, which begins August 7 at its new venue in Champaign, Illinois. Don't miss out. Subscribe for free today!

have. There are several reasons why the policies are excess. It is required by the insurance company to keep the overall cost down. Most states consider homeowner's policies primary and it saves AMA and its members more than \$100,000 per year in insurance costs.

If your homeowner's policy denies a claim, the claim exceeds your policy limits, or you don't have any other applicable coverage, your AMA insurance would come into effect.

Q: How do I file a claim with AMA?

A: Please contact AMA's Safety & Member Benefits department as soon as possible to report the claim. You can call (765) 287-1256 or email claims@modelaircraft.org to provide an initial report. AMA staff will forward the appropriate claim forms with specific instructions to you or other involved parties. You can find more information at www.modelaircraft.org/files/howtoreportaclaim.pdf.

Q: Will filing a claim with AMA have any negative impact on my membership dues?

A: No. Insurance coverage is a benefit you receive for being a member. Your membership dues are not based on any insurance claims you may have filed.

Q: How does AMA insurance work for a member residing outside the US?

A: For AMA members who are US residents living abroad, the AMA's liability coverage applies to model operations on US military installations and specific FAI events. For model operations at different locations, we recommend that you contact the location's national modeling organization.

For non-US residents participating in model operations in the US, AMA offers an Affiliate membership.

Club- and Flying Site-Related Questions:

Q: What is a chartered club and why should my group consider becoming one?

A: In the mid-1960s, AMA established a program that gave area AMA members the opportunity to join together as a group, enjoy camaraderie, exchange modeling tips and tricks, and secure the use of flying sites. Today

AMA charters nearly 2,400 clubs throughout the US.

There are various programs and benefits available for a charter club that can assist in finding a flying site, making improvements to current flying sites, and providing liability protection to club officers as well as property owners.

Q: What is the procedure for chartering a club?

A: There are some minimum requirements you must meet. Your group must consist of five or more current AMA members and the majority of your activity must relate to building and flying model aircraft. Other requirements and the forms that need to be submitted are on AMA's website at www.modelaircraft.org/files/915.pdf.

If you are looking for information about chartering a school aeromodeling club, you can find the minimum requirements for the Model Aviation Student Club program at www.modelaircraft.org/files/requirements.pdf.

Q: I am a club officer. How do I gain access to our club's online roster?

A: In order to access the club roster in the "Members Only" section, you will have to make sure that you are logged in to the AMA website and that your account is linked to your AMA membership. This allows the system to recognize your officer status. You can find some detailed "how to" information at www.modelaircraft.org/membership/membership/gettingstarted.aspx.

Changes in officers' positions must be submitted in writing by an officer we have listed. A newly elected officer cannot make the change. This can be submitted via email, fax, or postal mail.

Q: Can Park Pilot Program members join our club and how will the lower liability coverage for the program affect our insurance?

A: The Park Pilot Program membership does not affect the club or property owner's liability coverage. The only difference is that the Park Pilot Program member has a limited amount of coverage.

Q: How do I find an AMA club in my area?

A: You can locate clubs in your area through the "Find a Club" search tool on AMA's website at www.modelaircraft.org/clubsearch.aspx.

Q: Does AMA sanction club fields?

A: No, the AMA does not sanction, approve, or validate club fields. The Academy charters clubs. The safe operation of a flying site is the club's responsibility. All flying activities should be governed by the AMA Safety Code. You can find recommendations for flying site layouts in the *AMA Membership Manual*.

Q: My friend owns a piece of land and is willing to let me fly there if I provide an insurance certificate naming him as an additional insured. How do I apply for this? Are any fees involved?

A: Certificates of Insurance (COI) cannot be issued on behalf of an individual member; they are issued only on behalf of an AMA chartered club or AMA sanctioned event. There are fees involved when providing a COI for a site owner. They range from \$20 to \$60, depending on the type of certificate needed.

Q: Why can't AMA issue a COI to an individual member?

A: The insurance company will not allow the Academy to issue a COI to an individual member because of the increased risk it poses. Allowing individuals to purchase the certificates could lead to more than 150,000 certificates being issued, which would be a great liability to the insurance company. Chartered clubs and sanctioned events are much more controlled environments than a member flying on a friend's piece of property.

Turbine- and Large Model Airplane-Related Questions:

Q: Do I need a waiver to operate a turbine-powered model?

A: Yes, according to the current AMA Safety Code and the turbine regulations.

Q: How can I get a turbine waiver?

A: You can find the necessary paperwork

on the AMA website. Go to the AMA “Documents” tab and select “Turbines” from the content list. This will take you to the section of the page containing the pertinent turbine information.

Both fixed-wing and rotary-wing waivers are issued, and each has a separate application process. Please contact us if you want to receive a printed copy.

Q: *Is there a fee to obtain a turbine waiver?*

A: No. You merely need to submit the completed documentation.

Q: *I am building a model (ARF) that will weigh more than the 55-pound limit the Safety Code allows. Can I fly this model and still be covered by AMA insurance?*

A: Possibly. The AMA’s Large Model Airplane Program allows models that

weigh 55-125 pounds and meet certain criteria to be flown after a Permit to Fly has been issued. For further details, visit the “AMA Documents” section online and review document 520-A. It contains the necessary information.

Introductory Pilot Program-Related Questions:

Q: *How do I participate in the Introductory Pilot Program as an instructor?*

A: This program is offered through AMA’s chartered clubs. An officer of your club must complete and submit the application.

Q: *After I have been designated as an AMA Introductory Pilot, how do I get the forms I need to carry out this function?*

A: The AMA will mail an initial packet to you. You can make copies of

the forms or contact the AMA Club Secretary and request more.

Q: *Does my Introductory Pilot status have to be renewed every year?*

A: No. You will have the Introductory Pilot status for your club until you or the club notifies AMA Headquarters of a change.

Contact Information

AMA Headquarters: (765) 287-1256 or (800) 435-9262. Ilona Maine, extension 251, ilonam@modelaircraft.org; Lois Mock, extension 291, loism@modelaircraft.org; and Lisa Johnson, extension 253, lisaj@modelaircraft.org.

Additional email addresses: clubs@modelaircraft.org; turbines@modelaircraft.org; safety@modelaircraft.org; insurance@modelaircraft.org; and claims@modelaircraft.org.

HISTORY PRESERVED This Way to the 1940 Nats

Contestants in the 1940 Nats arrived at meet headquarters in every sort of conveyance—from bicycles to 16-cylinder Cadillacs. Meet headquarters was the Hotel Sherman in downtown Chicago. From there, buses took contestants to the locations of the indoor and outdoor events.

For those who didn’t make use of the buses, signs were placed throughout the city directing people to the outdoor field. One of these signs was a painted wooden arrow pointing to the right, informing people that the 1940 Model Airplane Championships was at 79th Street and Keeler Avenue. Although modest in its decoration, its size—2 feet high by 4 feet long—certainly gives it presence.

The 1940 competition itself had presence. In its September 1940 issue,

Model Airplane News (MAN) was filled with praise. It described the field as “excellent,” citing its expanse, natural qualities, organization, and oversight.

Approximately 1,400 contestants entered, and nearly 100,000 people watched. Even with this large number of people present, *MAN* reported no slip-ups or arguments. Credit for such a smooth operation goes to the sponsors and organizers from the *Chicago Daily Times* and the Chicago Parks District.

Red and blue posters enticed people with the description, “America’s Greatest Junior Air Show,” and a drawing of a speeding airplane. Measuring 38.5 inches high by 58.5 inches long, the posters featured full details of the event, including the sponsors, dates, and admission.

Although only one of these posters survives, one wonders if there would have been more placed around Chicago. Surely something would have been at the



Hotel Sherman, which, in addition to housing the contestants and feeding them at the Victory Banquet, also hosted an exhibit featuring 70 manufacturers and publishers displaying “every kind of merchandise dear to the hearts of model builders.”

The original purpose of these posters and signs was to inform people that the event was happening. Now in the National Model Aviation Museum’s permanent collection, they exist to remind us that the 1940 Nats happened.

Watch for more reports about the surviving artifacts of this great competition. Museum staff members would enjoy hearing your memories. Please share by emailing mariaav@modelaircraft.org, calling (765) 287-1256, extension 508, or visiting the museum’s Facebook page.

—National Model Aviation Museum staff



Aeromodeling restrictions remain in effect in Washington, D.C.

Following the terrorist attacks of September 11, 2001, concern regarding national security resulted in heightened security measures across the country. The airspace around

Center. Congress has never legitimized the restrictions created by this group; however, any thoughts of opposing the Executive Branch's actions diminished following two mishaps that led to the evacuation of the Capitol.



Washington D.C. Flight Restricted Zone.

Washington, D.C., underwent a number of changes designed to tighten control and restrict flying near the nation's capital.

In 2003, a temporary flight rules area was created and was named the Washington D.C. Air Defense Identification Zone (ADIZ). An ADIZ is an area around US territories comprising airspace over land or water in which the ready identification, location, and

restricted area known as the "DC FRZ (Freeze)."

The DC FRZ extends approximately 13-15 nautical miles (15-17 statute miles) from Ronald Reagan Washington National Airport. Flight within the FRZ is restricted to governmental, certain scheduled commercial, and a limited set of waived flights.

Although not part of the federal regulation, a permanent Notice to

control of civil aircraft is required in the interest of national security.

The Washington D.C. ADIZ was created by the FAA in response to recommendations made by a multiagency group known as the National Capital Region Coordination

Airmen (TFR-0/8326) prohibits the following operations within the DC FRZ:

"Flight Training, Aerobatic Flight, Practice Instrument Approaches, Glider Operations, Parachute Operations, Ultra Light, Hang Gliding, Balloon Operations, Tethered Balloons, Agriculture/Crop Dusting, Animal Population Control Flight Operations, Banner Towing Operations, Maintenance Test Flights, Model Aircraft Operations, Model Rocketry, Float Plane Operations, Unmanned Aircraft Systems (UAS) and Unmanned Aircraft/Helicopters."

At the time the restrictions were emplaced, there were two AMA chartered clubs within the DC FRZ: the Goddard Model Airplane Club (MAC), operating at the NASA Goddard Space Flight Center, and the Far Away RC Club, located at Anacostia River Park.

In April 2009, AMA requested waivers for these two clubs to allow them to continue operations within the FRZ. A waiver was granted for the Goddard MAC; however, the request for waiver for the Far Away RC club was denied because of its proximity to the Capital Mall.

To date, aeromodeling activity at the NASA Goddard Space Flight Center is the only model aircraft operation allowed within the Washington D.C. FRZ. This year AMA intends to submit a request for a waiver for a new Park Pilot club being formed in the Fort Belvoir area and to resubmit its request for a waiver for the Far Away RC Club. ✈️

—Rich Hanson
Government and Regulatory Affairs

Advocating on your behalf



Rich Hanson provides answers to your questions on the government-relations section of our website: www.modelaircraft.org/gov. Visit this regularly for updates.

Rich's blog contains information on timely topics and news items. Check out the AMA government relations blog at <http://amablog.modelaircraft.org/amagov>. This complex issue affects the entire aeromodeling community. ✈️

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Join RC flying enthusiasts where they live and fly....
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- Two major fly in events each year including the 13th Annual Fly-In on October 5th



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#9305/07/13

product *Spotlight*

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

PERILOUS MOON

REVIEWS

Amber Burton provided us with this review of *Perilous Moon*. Here is what she had to say:

In *Perilous Moon, Occupied France, 1944-The End Game*, author Stuart Nimmo recounts the harrowing story of the fateful night his father, RAF bomber pilot Neil Nimmo, was shot down over occupied France after a bombing mission during World War II.

Compiled from Neil's unpublished notes and writing sessions with his son, the adventure opens in April 1944 and winds through the final desperate days of the European theater. The book is filled with lavish detail and twists and turns that are all the more sobering because the events were true.

In his first-person account, Neil's tale begins on April 10, 1944, as he and fellow members of the RAF 101 Squadron prepare for a bombing raid on Aulnoye-Aymeries railyards. Neil was piloting a Lancaster III SR-Q "Q-Queenie," which had already bombed Berlin several times and had recently been repaired after barely surviving the Nuremberg raid 11 nights before.

The Q-Queenie was in the final wave of bombers flying the mission and was on course, but a malfunction caused the bombs to fail to release and Neil was forced to come around for another pass. The second attempt was successful, but Q-Queenie now lagged significantly behind the rest of the bombers.

The predicament was dire as Neil attempted to avoid flak and worried about the aircraft's exposure to German fighters in the bright moonlight.

The first-person perspective of Neil's

narrative makes his fear palpable. The crew saw the Lancasters flying ahead of them come under attack. The night sky lit up as the bombers exploded, falling victim to an attack by Luftwaffe ace Helmut Bergmann.

Despite Neil's best evasion efforts, Bergmann fired upon the doomed craft, and Neil and his surviving crewmembers scrambled to escape as the aircraft pitched and burned while plummeting to the ground.

Initially trapped, Neil broke free and was sucked out of the rear of the aircraft. Having narrowly survived, he found himself downed in a field with an injured ankle, little cover, and the need to conceal his parachute.

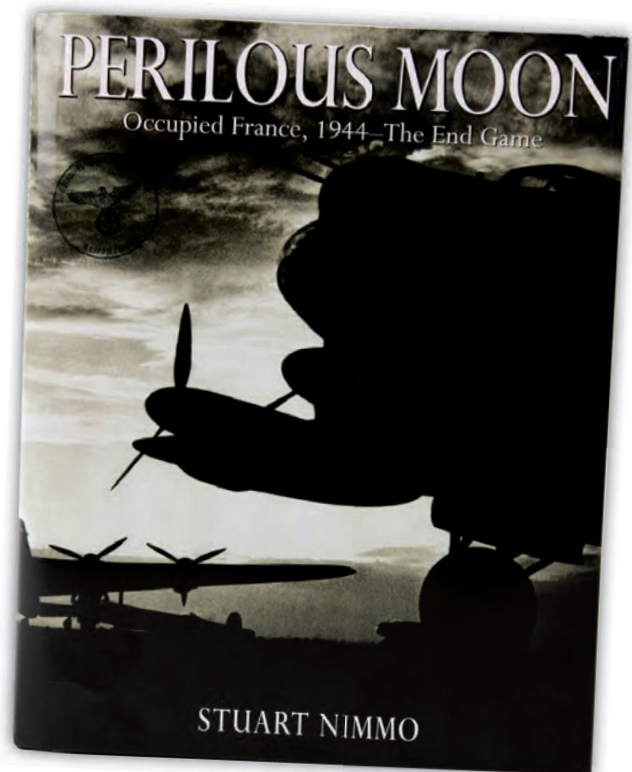
Neil's nightmare was only beginning. His tale continued as he traveled on foot through the rural French countryside seeking allies and rescue, knowing his likeliest chance at survival was to make it to Paris. Along the way, Neil found assistance from members of the French Resistance.

Although Neil's story is filled with many close calls, there are moments of humor and brevity, such as his first taste of wine provided by French farmers he encountered the day after his crash. Their kindness was the first of many, helping the British pilot survive his ordeal.

Perilous Moon is similar to other war stories of survival and courage against seemingly insurmountable odds, but Stuart Nimmo's experience as a documentary filmmaker shows in his storytelling and his inclusion of the parallel perspective of Luftwaffe pilot Helmut Bergmann, the man responsible for shooting down Q-Queenie.

Bergmann became a rising ace in the Luftwaffe after the attacks of April 10-11, claiming seven aircraft and 38 Allied airmen. Aviation enthusiasts will enjoy the extensive descriptions of the flight maneuvers and battle tactics employed by the Allies and Luftwaffe, and the methods Bergmann used in his attacks including the "Wilde Sau" (Wild Boar).

Stuart chronicled Bergmann's ascension in the ranks of the Luftwaffe as he became a frequent subject of Nazi



propaganda photographs and campaigns.

Perilous Moon is a rich and detailed history that reads with the intrigue and suspense of a spy thriller. The concurrent stories of Neil and Bergmann come to life with lavish illustrations and the inclusion of numerous personal photographs and documents from both pilots' collections. The photos are at times charming or chilling, such as the

case of one that captured Bergmann's penchant for visiting the locations of his victims' aircraft, and dancing across them.

With detailed footnotes and extensive research, *Perilous Moon* is a must-read for any World War II history buff. From a discussion about how aviation changed warfare to the ingenuity of Luftwaffe engineers in harvesting and smelting crashed Allied aircraft, it is frightening to realize how close the Germans came to winning.

The personal story of two pilots and their motivations as soldiers and men is a sobering reminder of how similar the enemy can be.

Casemate: 908 Darby Rd. Havertown PA; Tel. (610) 853-9131; website www.casematepublishing.com.

PROTEK HELICOPTER SERVOS

REVIEWS

Helicopter pilot Greg Alderman contributed this review of the ProTek R/C Digital Hi-Torque/Hi-Speed Metal Gear helicopter servos from A Main Hobbies. Here is what he had to say:

A couple of months ago, I had the opportunity to review and try the top-of-the-line ProTek R/C 250T Digital Ultra Hi-Torque Metal Gear Helicopter Cyclic Servos and the matching ProTek R/C 250S Digital Ultra Hi-Speed Helicopter Tail Servos (featured in "Worth a Closer Look" in the April 2013 issue).

I was pleased with their performance so I jumped at the chance to try the ProTek R/C 230T Digital Hi-Torque Metal Gear Helicopter Cyclic Servos and ProTek R/C 230S Digital Hi-Speed Metal Gear Tail Servos, available from A Main Hobbies.

ProTek reduced the street cost of the 230-series servos slightly more than 20% by utilizing a hybrid case design that has the great heat-dissipating properties of an aluminum mid-case, with less-costly traditional plastic top and bottom case components.

Don't think that because the servos are 20% less expensive than ProTek's all-aluminum-cased, 250-series



counterparts, that you are taking a 20% loss in performance. Not at all! The ProTek R/C 230T cyclic servos pack a respectable 250 ounce-inch torque at 0.10-second transit speed at 6.0 volts, and a whopping 308 ounce-inch torque at 7.4 volts at a transit speed of 0.08 seconds.

The 230S tail servo has the same specifications as the more expensive, all-aluminum-cased 250S tail with 83 ounce-inches at 0.05 seconds at 4.8 volts and 102 ounce-inches at 0.04 seconds at 6.0 volts. ProTek does not recommend running either the R/C 230S or the 250S tail servos at voltages greater than 6.0 volts.

As with the R/C 250-series servos, the 230S came with the nice, infinitely adjustable, metal double-servo arms.

These arms are unique in that you first attach a bushing to the servo output shaft then slide the double arm onto this bushing.

The double arm is secured with a "cinch bolt" and a set screw. You can accurately set up your servo linkages without using any electronic subtrim in either your transmitter or your flybarless controller.

To not go back on my word from my other review that there was no way I was going to remove the 250-series servos from my Outrage Fusion 50 test platform, I installed these 230-series servos in my Synergy E5 from Synergy R/C Helicopter.

Although the Synergy's "direct swash-to-servo" control does not allow for the use of the included adjustable metal double-servo arms, installation was a breeze.

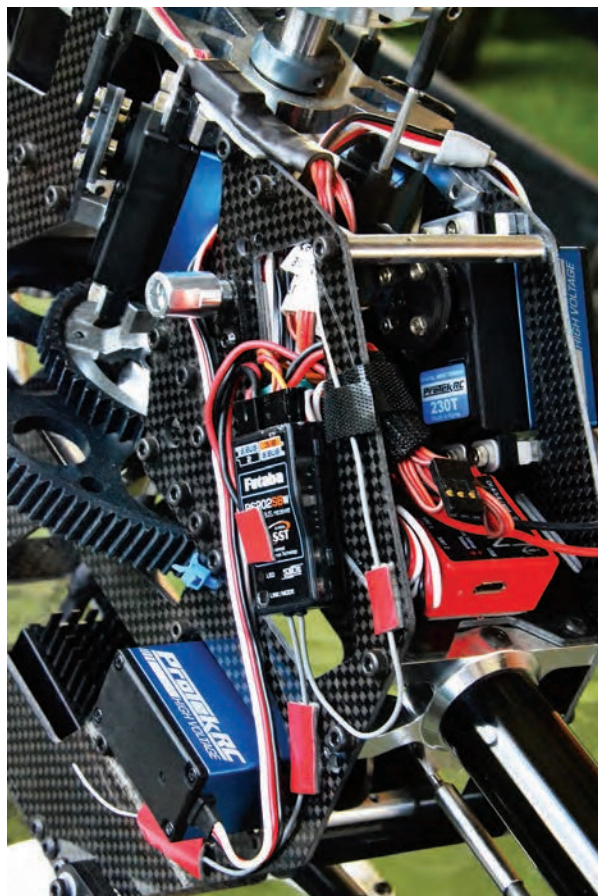
I was impressed with the smoothness and tight gear tolerance of these servos.

I now have 20 flights on these servos in my Synergy E5 and they perform great! They are quiet, precise, and have the great centering that is needed in a helicopter.

I was surprised that I could not hold my finger on the servo arm and stall out these servos.

At a retail price of \$99.99, these servos are a great bang for the buck! ProTek is an A Main Hobbies brand distributed by Swift Distribution out of Chico, California. The company's products can be found at many retail hobby shops throughout the US.

A Main Hobbies: 424 Otterson Dr., Ste. 160, Chico CA 95928; Tel.: (800) 705-2215; website: www.amainhobbies.com.



product *Spotlight*

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

.....
Castle Polarized Connectors @ \$6.95-\$11.75 + S&H from Castle Creations; 540 North Rogers Rd., Olathe KS 66062; Tel.: (913) 390-6939; www.castlecreations.com.

Many modelers use polarized connectors because they make it difficult to destroy expensive electronics and batteries by plugging in backward. However, modelers have been lacking a connector capable of extremely high currents and have to increase voltage to maintain amperage levels.

Pilots can now "go green" with Castle Creations Polarized Connectors. The



Castle connectors will handle up to 200 amps of continuous current at any voltage level used in RC applications. Using the industry-leading 6.5mm CC Bullet gold connector, Castle Creations produced the highest-rated polarized connector in the market.

The user-friendly polarized connectors feature added ridges on the housing that makes them easier to grip. They accept up to the maximum of 6-gauge wire, and the connectors have been marked "Battery" and "ESC" for easy reference.

Batteries and ESCs aren't the only applications the connectors can be used for. Use them on charger leads, parallel and series harnesses, high-current amp/watt meters, or anything else that needs high current.

Castle Creations Polarized Connectors come in three combo packages: male and female single packs (two male connectors, two female connectors, and two housings), male-only packs (six male connectors and three housings), or female-only packs (six female connectors and three housings).

.....
Tel.: (800) 552-0299; website: www.redbaronadhesives.com.

Red Baron Adhesives introduces a complete line of adhesives formulated especially for the hobby industry. The lineup includes special "surface insensitive" CA glue that compensates for bonding surface PH to provide superior results every time; rubber-toughened CA glue; revolutionary rubber-toughened Flex-Cure Epoxies; and anaerobic thread-locking products. Red Baron Adhesives are manufactured under ISO 9001 quality standards and sold by the manufacturer directly to hobby dealers.

Flex-Cure Epoxy products are revolutionary because they are blended with microscopic rubber particles that prevent the adhesive from curing glass hard, yet it can easily be sanded. They cure with a degree of flexibility, allowing them to absorb vibration and not shatter or crack on hard impact.



The Finishing Resin epoxy system has a thinner viscosity formulated for use with laminating and attaching glass cloth to reinforce any model surface.

Red Baron CA glue products are 99% pure monomer and meet Mil Spec 46050C. No other CA has a higher degree of purity—none have better bonding strength! Red Baron CA is the freshest in the industry and is proven by the actual date of manufacture on each bottle.

Flex-Tuff CA is a clear, rubber-toughened CA that adds flexibility to the cured adhesive. It's perfect for use where high-impact, high-stress, or high-vibration levels are concerns.

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All products are backed with a 100% money-back guarantee.

.....
Eraze Brushless Electric Airplane @ \$99.98-\$149.99 + S&H from Hobbico, 3002 N. Apollo Dr., Suite 1, Champaign IL 61822; Tel.: (800) 637-7660; website: www.flyzoneplanes.com.

Fast-forward into flight with Flyzone's new Eraze brushless, electric-powered airplane! The futuristic aircraft is made from tough, ultralight, factory-finished AeroCell foam and can be assembled in less than 60 seconds. Snap the rudder into place and let the magnets do the rest. Finger holes in the foam fuselage make it easy to get a good grip for quick hand launches.



The 18.1-inch wingspan Eraze arrives with a 28mm brushless motor, 12-amp ESC, SLT 2.4 GHz receiver, and two preinstalled microsensors. The RTF version offers all-in-one convenience and includes a Tactic TTX404 four-channel 2.4 GHz radio system, 7.4-volt 600 mAh balanced LiPo battery, DC balancing charger, and four AA batteries.

The Transmitter-Ready (Tx-R) Prime version offers a pilot maximum economy by providing the option to fly with his or her radio, battery, and choice of charger. An AnyLink adapter and compatible four-channel radio with elevon mixing, or four-channel radio with elevon mixing and SLT, 7.4-volt or 11.1-volt 600 mAh LiPo battery, and LiPo charger, are required.

.....
Microaces Spitfire Mk1a @ \$80.68 + S&H from Microaces; email: jonporter@microaces.com; website: www.microaces.com.

The Royal Air Force (RAF)

Benevolent Fund is a charity established in 1919 to look after the welfare of past and present RAF personnel and their families. It is the guardian of the RAF Memorial and the new Bomber Command Memorial in London.



Microaces marks the occasion of the RAF's 95th birthday and raises money for the RAF Benevolent Fund by launching its Spitfire MkIa Deluxe Kit.

The Spitfire uses the same construction methods and materials as the previous kits, including Depron Aero, reinforcing carbon-fiber spars, an aileron servo, and the unique Microaces printed sticker material that makes the airframe incredibly crash resistant.

This 1/24-scale replica has a lighter wing load than the P-51D Mustang or the Focke-Wulf Fw 190A, making it more stable at lower speeds, easier to control in most maneuvers, and suitable for less-experienced pilots.

Assembling in 6-8 hours, the Spitfire comes complete with comprehensive instructions, requiring no special skills or previous experience. All that is needed are a few tools, a Spektrum AR6400, AR6410, AR6400L, or AR6410L microreceiver, a compatible transmitter, and a few single-cell LiPo batteries.

.....
Pulsar 4E Pro ARF Sailplane
@ \$1,125 + S&H from Esprit
Model, 1240 Clearmont St. NE
#12, Palm Bay FL 32905; Tel.:
(321) 729-4287; website:
www.espritmodel.com.

The latest and largest addition to the Pulsar line of handmade, electric sailplanes is the Pulsar 4E Pro. Built at Esprit Model's request, this model is a larger version of the midsize 2.5-meter Pulsar.

Using the AG25-modified airfoil designed by Dr. Mark Drela specifically

for 3-meter and larger Thermal Duration airplanes, the entire model is constructed using FF techniques. The wing is a balsa, built-up carbon-fiber and Kevlar D-box design that utilizes carbon-fiber-faced balsa ribs and a carbon-fiber TE. The open section of the wing and tail parts are covered with UltraCote, while the fuselage is made of white gel-coated Kevlar with a carbon-fiber tapered boom and removable fiberglass/Kevlar nose cone.



The three-piece wing and two-piece conventional tail on this 157.5-inch sailplane are easily removable for transport and storage, and the rudder and elevator servos install in the vertical fin.

The Pulsar 4E Pro has aileron, elevator, rudder, and flap control. All necessary hardware is included.

.....
Tucan Sport Trainer/Aerobatic
Flyer Kit @ \$179.99 + S&H from
Multiplex USA, 12115 Paine
St., Poway CA 92064; Tel.:
(858)748-8440; website:
www.multiplexusa.com.

Multiplex's new, sleek, low-wing Tucan makes a great sport trainer and aerobatic flyer, providing endless flying fun. The stable, well-constructed design delivers superb performance with good-natured handling. It features a detailed cockpit with clear canopy, a strong undercarriage and sturdy fuselage, as well as stylish decals. Its many outstanding features set it apart from

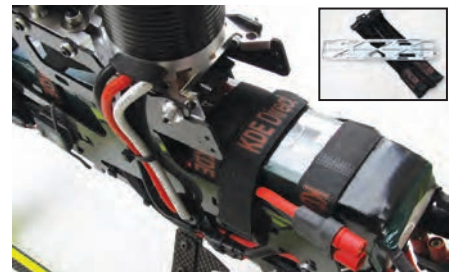


other airframes in its class.

The Tucan includes fittings for optional retracts. It requires a 400- to 500-watt outrunner motor, 3S 3,200 mAh LiPo battery, 50- to 70-amp ESC, and an 11 x 5.5 propeller. Multiplex recommends using four HS-81 and one HS-82MG servos, and a Minima/Maxima/Optima 6 or Optima 6 Lite receiver.

.....
SAB Heli Division Goblin
630/700/770 Battery Tray
Upgrade V2 @ \$36.95-\$67.95 +
S&H from KDE Direct; email:
contact@kdedirect.com; website:
www.kdedirect.com.

KDE Direct's Battery Tray Upgrade V2 for the Goblin 630-, 700-, or 770-series helicopter provides the best support for LiPo batteries during flight. The battery tray is an ultralight, high-strength frame design with a clear, anodized, mirror-polish, CNC gloss finish that provides exceptional support and holding strength for LiPos in an easy-to-install platform for the Goblin.



The Goblin Battery Tray Upgrade V2 is the identical tray to the AT700E-BTU-V2 design, which is a perfect match to the stock rails of the T-Rex 700E (V1/V2/DFC) design, so pilots can easily share between helicopters without needing to remove the batteries from the tray between charges and flights.

In addition to the new tray, the upgrade includes six KDE Direct LiPo Retaining Straps, which are optimally sized for the four LiPo channel slots incorporated into the tray design and the Goblin frames, providing optimal security and slop-free LiPo retention during extreme 3-D maneuvers.

The KDE Battery Tray Upgrade V2 for SAB Heli Division Goblin 630-, 700-, and 770-series helicopters is available as a single tray or for purchase as a pair, saving \$5.95.



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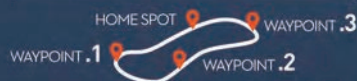


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The lift competition at the Multirotor Challenge utilized a box with custom compartments to hold weights.

Inaugural Multirotor CHALLENGE

Innov8tive Designs hosts pilots, designers, and inventors in California

by Michael Heer

The inaugural Multirotor Challenge was held in Fallbrook, California, the weekend of March 23-24. The site for this event was the Palomar Fliers' flying field, located off of I-15, roughly an hour from downtown San Diego. It is a nice flying field and the Palomar Fliers were wonderful and gracious hosts. They went out of their way to make us feel welcome.

The event organizers were Lucien Miller and his team from Innov8tive Designs. Lucien introduced his team members, discussed their responsibilities, and thanked them for their hard work before and during the event.

A number of vendors and supporters donated to the event and the raffle boasted more than \$10,000 worth of items for the pilots to win. Items including complete multirotor kits and all of the related goodies were up for grabs. I was one of 63 registered pilots.

Saturday morning started out overcast with a high cloud

cover that burned off by mid-morning. A southwesterly breeze built throughout the day and it became a factor in the early afternoon Pylon competition, but was not an issue for the general flying.

Saturday was slated for open flying all day with the exception of the noontime demonstrations. Many pilots took advantage of the open flying and the Roswell Flight Test Crew that flew down from Portland, Oregon, remained busy videotaping the event from the sky.

The Roswell group posted a video of the event on YouTube that covers part of the adventure and offers nice aerial shots. The link is listed in the "Sources" section at the end of the article.

Lifting competitions were Saturday's first two challenges, featuring a Dead Lift event and a Controlled Lift competition.

In the Dead Lift, the multirotor had to lift the weight load selected by the pilot from the ground to at least 5 feet, hold

it there for 10 seconds, and then make a controlled landing.

The Controlled Lift involved the multirotor lifting the weight and then flying a controlled Figure 8 with the load and finishing with a controlled landing at the starting point.

Both events had awards for the heaviest load lifted, regardless of the weight of the multirotor. In this competition, battery weight counted as payload.

The second prize was for the heaviest weight lifted, with the battery counting as part of the multirotor's weight. Lucien supplied the larger aircraft with a special box with compartments for weights, which was tied to the multirotor, although some contestants, including Ben Berry, added battery packs to their multirotors to increase the weight. Ben flew a self-designed Micro Spider to win this part of the competition.

Blue Sky RC sells the kit for this unit made with $\frac{1}{8}$ -inch plywood. The company calls it the xRotor Spider Quad. The arms are the same size as the fuselage of a Slow Stick airplane and Ben's were made of wood, but metal can also be used.

It was a fun competition. Pilots tried to lift as much weight as they could and eventually most found the point where they couldn't lift off. Some tipped when trying to lift heavier loads, resulting in broken propellers.

Pilot demonstrations were performed during lunch on Saturday and three demonstrations stood out in my mind.

One pilot had his multirotor fly an autonomous, programmed flight. He moved the throttle up and then took his hands off of the transmitter, and the multirotor lifted off and flew a complete flight, including a good climb, several maneuvers, and a Figure 8 before coming back and landing close to the takeoff point.

The flight was completely autonomous after the initial throttle-up by the pilot. It was an impressive demonstration, and especially remarkable to some of the spectators who



The Cyclone is an AeroQuad kit. The arms are made from towel bars.

didn't realize this was possible with "hobby-size" multirotors.

The second demonstration that impressed me was hand-launching a multirotor with propellers that were already spinning to demonstrate how its stabilization system worked to bring the aircraft quickly into a controlled hover.

Ben Berry's Spider multirotors were equipped with ESCs that could change direction, which made for some impressive moves. He flew more aggressively than many of the other pilots. ROC Battery sponsored an award that pilots and spectators decided by vote and Ben's flying won.

Saturday afternoon featured two more competitions. The first was the Pylon Race. A good afternoon breeze helped confirm that multirotors are not designed for Pylon Racing.

Many made wide turns when flying with the wind and had trouble turning back into the wind. It seemed that the faster they flew, the wider the turns were.

One pilot tried to race with a little micro multirotor. He couldn't overcome the wind and landed in "the Jungle," an overgrown ravine at the edge of the field. Fortunately, the little aircraft was found in working condition.

Walt Ferar competed in several events. He did a nice job

Photos by the author

The pilots lined up on the runway for a picture at the first Multirotor Challenge.



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flying his aircraft in the Pylon competition. He told me that he was an experienced RC Pylon competitor, which showed in his racing. Pilots need to practice in both calm and windy conditions to learn how best to fly their multirotors around the pylons in a fast, tight pattern. I expect much improvement by pilots who return to compete next year.

Autonomous Spot Landing involved flying the multirotors up and out as Lucien directed, then activating the aircraft's return-to-home button so it

DWFoamies created a new design for this event: a foam flying saucer complete with LEDs.



Right: Walt Ferar's RC Pylon racing experience was evident in the competition. He is shown with the multirotor craft he flew in the Pylon competition.



would return on its own without pilot control. The winner was Jim Donnarbel, whose DJI Phantom landed 5 feet, 8 inches from where it took off.

Equally impressive was the number of aircraft that came back and landed within 15 feet of the starting point. One came back and hovered roughly 6 feet above the starting point, and then began to descend.

Spectators cheered because it appeared to be the sure winner. At approximately 1 foot off of the ground, it flew sideways and climbed back up to 6-8 feet, stayed in a hover, and wouldn't land on its own.

I left for home at 5 p.m. and missed the Occupy the Sky event that featured a large number of multirotors flying together above the runway. Clips of this are included in the Roswell Flight Test Crew video.

After dinner, the pilots returned to the field for some night flying. A video of the night flying was projected on the side of a trailer at the field.

It turned out to be a full day of flying, with plenty to observe and buy from the vendors. I was impressed by the custom carrying cases from Go Professional Cases Inc. in San



Lawrence Tougas, AMA District X vice president, addresses the crowd. Lucian Miller, the event organizer, is standing behind Lawrence.

Diego. The company can cut to individual requirements and offers standard cases cut for the DJI Phantom.

DWfoamies attended and brought a special foam UFO, complete with lights, which can protect a quadcopter and look good doing so.

I bought parts and propellers from Innov8tive Designs. I also enjoyed seeing a number of the various designs available for purchase, including one made with towel bars for arms from AeroQuad.

Sunday featured the Obstacle Course competition, in which pilots flew above, around, and under PVC pipes that were set up to form the obstacle course. Flying the course was hard for some and flying it fast was a challenge for many that led to some broken propellers.

More open flying, the spectacular pilots' raffle, and the presentation of handsomely carved glass awards ended the event on Sunday.

Lucien Miller and his staff did a great job of organizing and running the event with the Palomar Fliers.

The pilots enjoyed the inaugural Multirotor Challenge and they are already looking forward to coming back for Multirotor Challenge 2014!

—Michael Heer
michaelheer@scglobal.net

SOURCES:

Multirotor Challenge website
www.innov8tivedesigns.com/MR

Roswell Flight Test Crew
<http://youtu.be/MYpJKFwVw5s>

Watch video highlights from the event in the tablet app and at www.ModelAviation.com/multirotorchallenge2013.



Several offerings were on display including two Next Level multirotors from Innov8tive Designs.

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by Dave Scott

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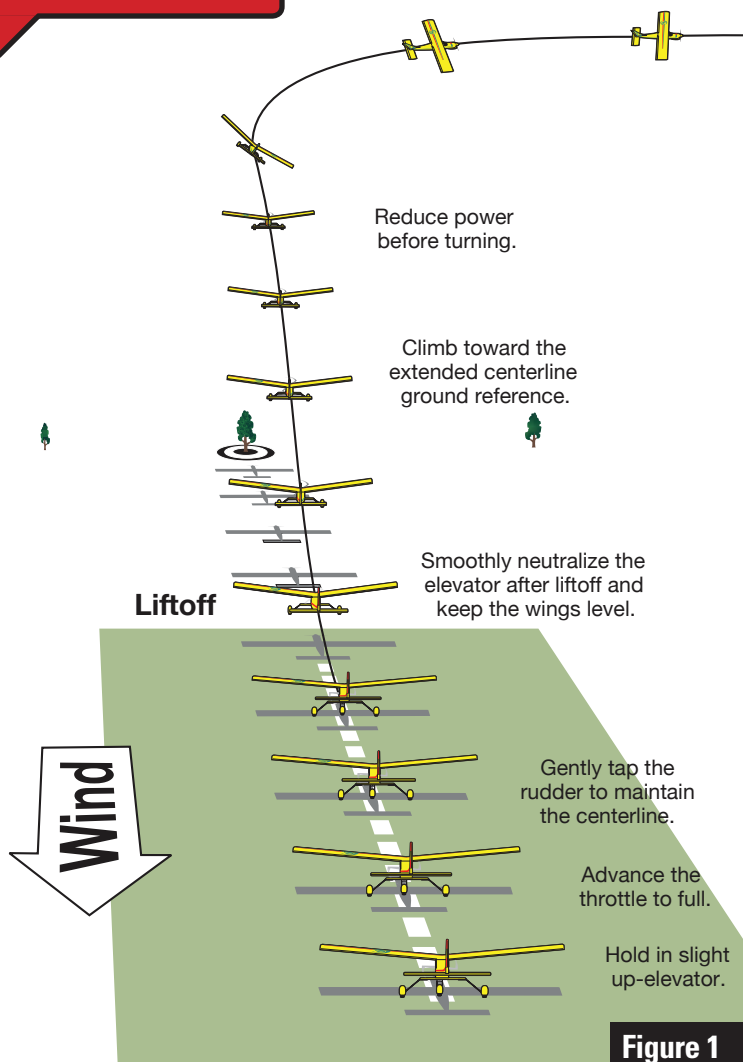


Figure 1

Rather than rehashing an ideal takeoff scenario, my goal is to explain the reasons why certain pilots routinely perform perfect takeoffs regardless of the type of airplane they fly, and at the same time, provide pilots with simple solutions to avoid several common takeoff mistakes.

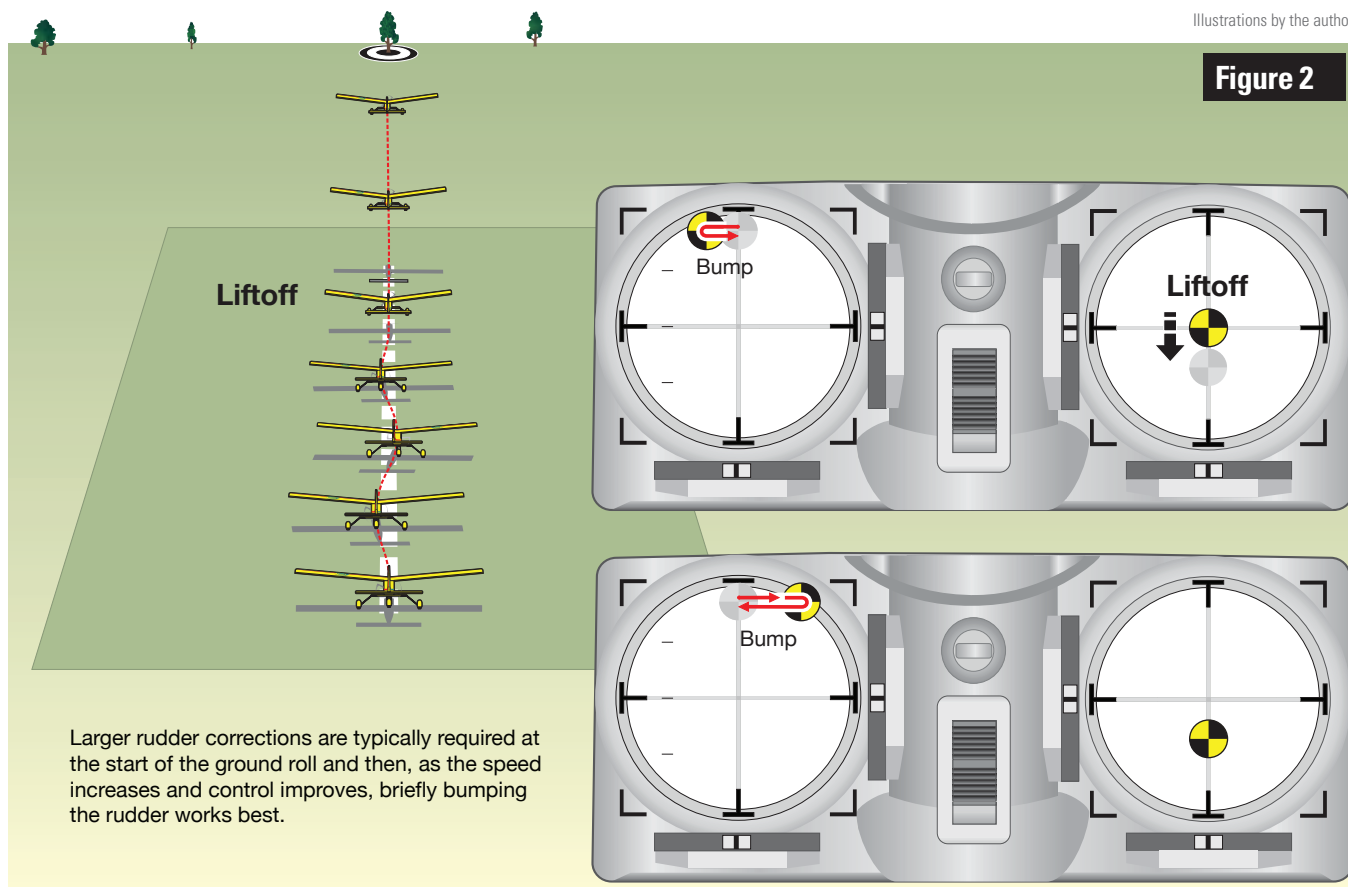
The takeoff procedures outlined in this article are standard and apply to all aircraft, whether high or low performance, tricycle gear or tail-dragger. Anyone who has made the mistake of using different takeoff techniques with different airplanes will find that takeoffs are easier when using standard procedures.

Laying the Groundwork

Good pilots control where the airplane is going instead of letting it go wherever it wants. You need to determine a ground reference on the horizon in line with your runway centerline. The goal is to climb out toward that reference to maintain the centerline and facilitate an easy entry into a familiar pattern right away (see Figure 1).

Those who don't maintain the runway centerline during the climbout will set a sloppy precedent for the flight, and their workload will tend to

Figure 2



Larger rudder corrections are typically required at the start of the ground roll and then, as the speed increases and control improves, briefly bumping the rudder works best.

be higher when they have to bring the airplane back from where they didn't intend it to go.

Takeoffs are typically performed into the wind. Many pilots neglect the importance of holding in slight up-elevator throughout the takeoff ground roll. Doing so prevents a tail-dragger from becoming top heavy and tipping onto its nose/propeller.

Unloading (taking weight off) the nose gear can reduce an aircraft's sensitivity and the possibility of

overcontrolling. The elevator will also help pull the airplane off the ground when it reaches flying speed.

Smoothly advancing the throttle to full power at the beginning of the takeoff roll is another key to easier, straighter takeoffs. Immediately accelerating to full throttle gets more air traveling over the tail sooner, which holds the airplane straighter and provides better rudder control.

Those who slowly advance the throttle will have difficulty keeping

the airplane straight because of the lack of air over the tail and poor rudder authority. If your airplane is overpowered and needs half throttle or less to take off, you should still smoothly advance the throttle to the takeoff setting.

There's no set technique for maintaining the runway centerline during the takeoff ground roll. This is when the pilot needs to react to the airplane. However, as a rule, larger sustained ground corrections are

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typically needed at the beginning of the ground roll, and then as the airplane picks up speed and control improves, small rudder bumps or taps work best (see Figure 2).

In calmer wind conditions, tail-draggers are not more difficult to get airborne than nose-gear airplanes, but they tend to be less forgiving if overcontrolled. Because overcontrolling is unlikely unless the rudder is held in too long, limit yourself to briefly tapping the rudder during the takeoff roll. It is okay to make large rudder inputs if they are not held in.

Liftoff and Climbout

A concern that many new pilots have is avoiding a stall after takeoff caused by climbing too steeply and losing flying speed. The amount of up-elevator used to take off does not cause an airplane to climb too steeply and stall, but it is the length of time that the elevator is held in (i.e., too long).

You must be prepared to start

smoothly—taking out the elevator as soon as the airplane leaves the ground—to maintain a more shallow climb and plenty of flying speed (see Figure 3). Small amounts of elevator can then be used to fine-tune the climb angle.

The most important aspect of taking off at the novice stage is keeping the wings level to avoid entering a low turn. It only takes a couple of seconds for a wingtip to strike the ground when a pilot neglects to level the wings.

A pilot could also forget to relax the elevator after liftoff and put the airplane into a stall. If he or she had kept the wings level, there would be several seconds to neutralize the elevator and lower the nose to recover.

Entering the Pattern

A novice pilot should avoid making any turns until he or she achieves a safe height and should reduce power to at least half before the first turn, setting

the stage for a forgiving first turn. After completing the turn, set the power and trim for straight-and-level flight at a comfortable speed. This will be difficult to do if a pilot fails to hold the centerline during the climbout and is working to position the airplane into view.

Trimming when you're a novice is easier if you raise the transmitter to see if the throttle is close to the speed at which you're comfortable flying. This eliminates distraction of the throttle while you maintain the pattern and trim (see Figure 5).

The most important aspect of launching an airplane that requires trim is to keep it flying until you have enough altitude to consider trimming.

Despite what you may hear, airplanes rarely crash because they are out of trim. Instead, they crash because their pilots are so preoccupied with trimming that they fail to make the necessary control inputs to keep them in the air!

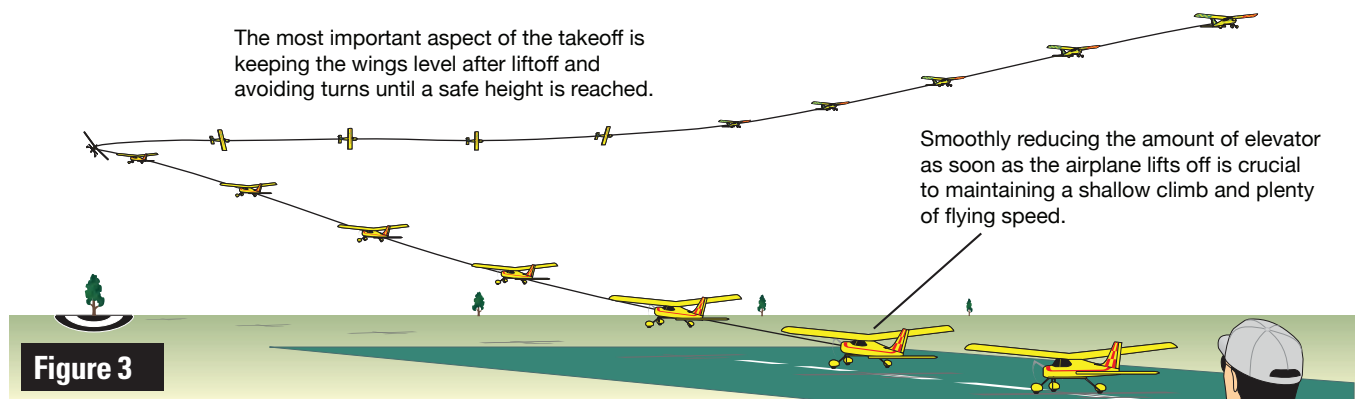


Figure 3

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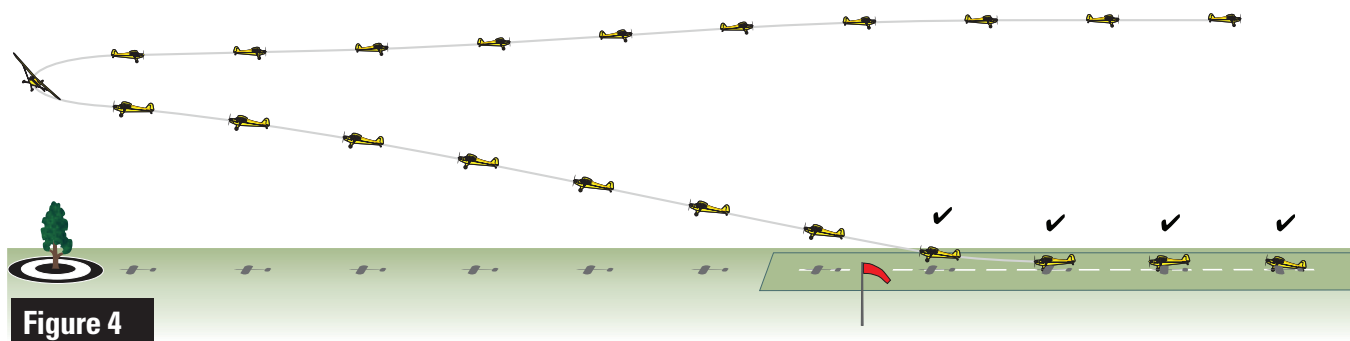


Figure 4

The standard takeoff procedure used for high- and low-performance airplanes (see Figure 4) is:

- Point the airplane into the wind.
- Hold in a small amount of up-elevator and steadily advance the throttle to full (do not hesitate).
- Smoothly tap the rudder to steer until the airplane lifts off.
- Reduce the amount of elevator when the airplane leaves the ground, and keep the wings level with the ailerons.

Pilots flying high-performance airplanes should also hold in slight right rudder after liftoff to counter the left-turning tendency (yaw) caused by propwash, then gradually remove the right rudder as the airplane gains speed and begins flying straight.

Raising the transmitter makes it easier to establish the correct throttle position and trimming.



Figure 5

Takeoff Summary

You don't have to be a veteran flier to take off like one when you understand the mechanics involved. If you've been reacting to the airplane

and using the trial-and-error method to take off, be prepared to feel as though something is missing when your takeoffs seem easier (and improved) the next time you fly. Remember to keep the wings level!

Happy flying. ✈️

—Dave Scott
1usrdfs@gmail.com

SOURCES:

1st U.S. R/C Flight School
www.rcflightschool.com



Dave Scott is a top full-scale aerobatics competitor, professional RC air show pilot, founder of the 1st U.S. R/C Flight School, and author of several RC flight training manuals. His books and articles feature accelerated training techniques that he developed while instructing more than 1,200 RC pilots during his school's four- and five-day courses.

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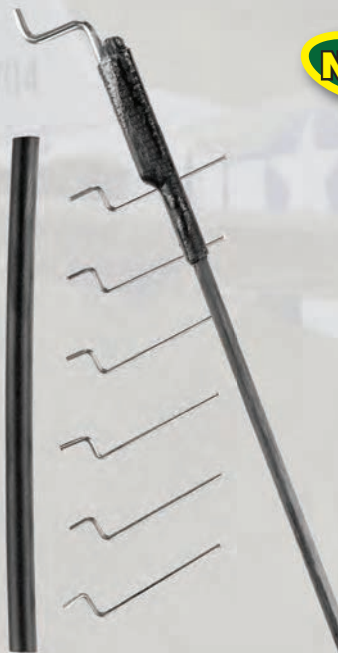
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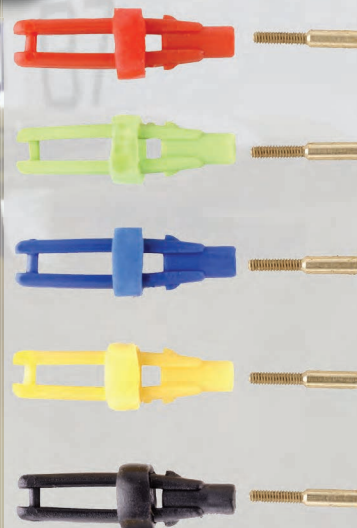


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AN UNCONVENTIONAL
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by Daniel Fritz



Using the spoiler causes the nose to pitch sharply up. A program mix will keep the fuselage level. Here the spoiler is deployed for landing.

For the last five years, I have been developing a two-meter canard sailplane called a Canarrow. Despite its unconventional appearance, the model is stable and easy to fly. It launches and flies conventionally.

The Canarrow is a good choice for a developing sailplane enthusiast looking for something unique with better performance than a typical beginner's ARF. The model employs traditional construction techniques and flat-bottomed airfoils for ease of building. It is strong enough to survive typical beginner mishaps. The forward surface is swept to protect it if the model were to flip over on landing.

The design has its origins in a stick glider I

made in the early 1980s. Canards were in fashion then. I was reminded of it when I decided to build something for a beginner-oriented contest series the Silent Order of Aeromodeling by Radio (S.O.A.R.) holds each year that is limited to rudder/elevator/spoiler (RES) and Two-Meter models.

That had me thinking about the classic two-meter dilemma of wing area versus aspect ratio. I figured the best way to have open-class figures for each was to start with an open-class wing. The idea was to chop off the outer panels, leaving a 2-meter center section, and then attach the severed tips to the fuselage in a lifting configuration.



Top: The five canard structures are complete except for upper surface sheeting and tip blocks. The lower spars are spruce, and the elevator servo bays have been cut out. The elevators are made from 2-inch aileron stock.

Bottom: A view from below of the canard's structure shows the upper surface sheeting, elevator servo bays, nylon bolt hole, and servo wire hole.

The Canarrow is technically a canard because pitch stability and control are provided by a forward lifting surface, but it is more correctly a tandem-wing airplane. The CG is entirely between the two lifting surfaces.

If one were to reassemble the forward wings to the tips of the main wing, the result would span 112 inches, offer 752 square inches of wing area, and have an aspect ratio of roughly 17. Of course, things are not so simple and drag is higher (there are twice as many tip vortices); nevertheless, this concept has proven successful.

The tip vortices from the forward wing flow over the top of the main wing at the dihedral breaks where some energy is recaptured. Sweeping the forward wing proved successful in protecting it, as it did on the old stick glider.

The forward wing lies behind two lines drawn from the nose to the tips of the main wing.

Assuming the model lands on a flat surface, something else must break before the canard will. The vertical stabilizer is tall enough to protect the canard when the model is inverted.

Construction

The fuselage is a semi-monocoque in that most of its strength comes from a thin, $\frac{1}{16}$ -inch skin, and the shape is maintained by robust, closely spaced formers. The corner joints are reinforced with triangle stock balsa that contributes to the model's overall strength. It has proven to be up to the job, despite high bending forces during contest landings.

The longest parts on the entire model are the fuselage side panels, which measure 48 inches and can be cut from a single sheet of commercially available balsa. These must be accurately cut to ensure that the wing and canard are properly aligned when everything is finished.

Install the forward plywood doublers by drawing a line $\frac{3}{16}$ inch from the nose on the inside of both side panels.

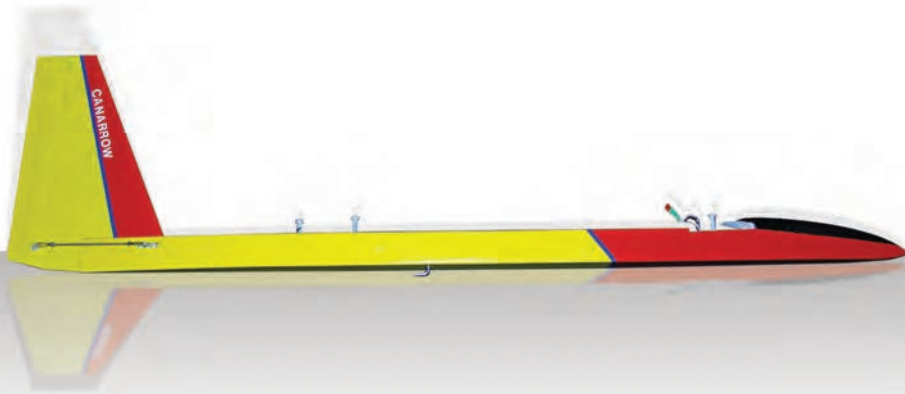
Align the tops of the doublers with the tops of each side panel and the front of the doublers with the line.

The plywood doublers set the angle of incidence for the canard after removing the excess balsa above them. The triangle stock balsa does not extend forward of the plywood doublers. It should also end $\frac{3}{16}$ inch from the tail.

Cut relief into the upper triangle stock for the doublers. Glue formers B, C, and all four Ds to both sides in a single gluing step using a slow-curing epoxy. Apply clamps or rubber bands around the fuselage sides at each former. Before curing, place the fuselage upside down on the building board and apply weight so the upper surfaces are aligned in the same plane.

The main wing center section only lacks the upper surface sheeting. The spar is a carbon-balsa laminate I-beam with carbon caps. The entire spar is wrapped with Kevlar tow to prevent delamination.





Photos and illustrations by the author

The upper sheeting is installed before the lower sheeting to allow the mounting surfaces for the wing and canard to be completed. For CG purposes, the battery and rudder servo are mounted in the aft compartment below the vertical fin.

The main wing is conventionally built with an I-beam spar, D-tube sheeting ahead of the spar, and open bay construction behind it. All sheeting is $\frac{1}{16}$ balsa with span-wise grain. The spar is full-depth to keep the caps as far apart as possible.

Accordingly, the D-tube does not overlie the spar, but merely butt-joins the forward sides of the spar caps top and bottom. The sheer webs are vertical-grain balsa. The TE is 1-inch solid balsa. The spars can be spruce or carbon/balsa laminates. Carbon/balsa is lighter. Use at least 0.014-inch carbon on the center section and 0.007 on the tips.

The laminated spar must be wrapped in carbon or Kevlar tow to prevent delamination under load. There is limited sheeting behind the spar to provide ease of handling/covering and additional rigidity.

Lower surface sheeting behind the spar is cut to fit into the bays between the ribs, spar, and TE. All upper surface sheeting overlies the ribs and butt-joins the spar and TEs. On the upper surface, the middle three bays and the bays immediately adjacent to the dihedral breaks (seven bays) are sheathed. On the lower surface, the middle three bays and inboard bays adjacent to the dihedral breaks (five bays) are sheathed.

The canard is built as three separate pieces. These are butt-joined together and the joints are reinforced with fiberglass. The center section is sheathed top and bottom and can either be permanently fixed to the fuselage or removable.

Each outer panel uses a single lower spar and a fully sheathed upper surface that serves as the upper spar. Only the bays immediately adjacent to the center section are sheathed on the lower surface using cross-grained balsa between the ribs and spars. The bays ahead of the spar are sheathed with $\frac{3}{8}$ wood and sanded to conform to the airfoil.

Actuation of the elevators is complicated by the fact that they move in different planes. The preferred method is to use small servos (Hitec HS-65 or equivalent) mounted in each outer panel behind the lower spar in the bays immediately outboard of the center section.

The servos are mounted at an angle with their arms aligned parallel to their respective elevator hinge lines. Actuation of the surfaces is by a short, straight link to the

into the center section of the canard. This setup requires either a computer radio or a Y harness.

Fiberglass reinforcement of the butt joints cannot be omitted and should be carried out one full bay on either side of the center section to ensure loads are transmitted across the surface skin joints.

The wing and canard are mounted using $\frac{1}{4} \times 20$ nylon bolts with threaded maple blocks to ensure accurate placement. In the flying surfaces, these bolts pass through unthreaded mounting blocks made from a sandwich of balsa capped with $\frac{1}{32}$ plywood measuring $\frac{3}{4} \times 1\frac{7}{8}$ and spanning the middle rib bays.

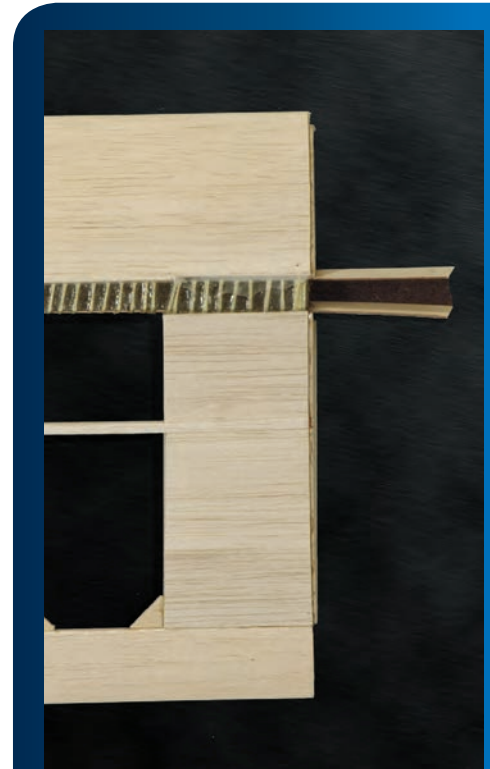
The plywood reinforces the lower surface sheeting in the event that a bolt sheers and accepts the loads from the bolt head. This sandwich is flat on the top and bottom. Make the sandwiches so that the top plywood surface comes up to the top of the ribs but does not exceed their contour. Install the blocks onto the lower surface sheeting.

Center and drill the bolt holes through the bottom of the lower sheeting before the upper sheeting is installed. Do not attempt to glue the upper surface sheeting to the blocks, which should lie immediately below the sheeting. After the

The fuselage after covering shows main wing and canard nylon bolts, wires for elevators and spoiler, towhook, and rudder linkage.

control horns, which are also aligned perpendicular to the hinge line.

The servo wires pass through small holes



The right side of the main wing center section shows the upper surface sheeting in place. The sheeting overrides only one of the doubled ribs at the dihedral break, leaving the other half of the ribs to accept sheeting from the wingtip panels.



The fuselage's main structure shows both sides, forward plywood doublers, triangle stock corner reinforcement, 3/8 x 3/16-inch tail stock, and all of the formers.

upper surface sheeting is on, complete preparation for the nylon mounting bolts by drilling from the bottom of the wing through the upper surface sheeting.

Install the nylon wing bolt from the top and cut around the head of the bolt through the upper sheeting. After removing the cutout skin, the head of the bolt will pass through the enlarged hole to seat squarely against the top of the mounting block and flush with the skin.

The first prototypes used the popular S3021 airfoil for all lifting surfaces. I later modified the airfoil for the wingtips and the canard to optimize it for the lower Reynolds Numbers I encountered. The modified airfoil is slightly thinned and the point of maximum thickness has been moved forward. All airfoil work and rib plotting was done with Profili2 software.

The vertical stabilizer is the simplest structure on the model. The only thing not immediately obvious is that the entire structure is sheeted in 1/32 vertical grain balsa.

The sheeting is primarily for CG reasons. The vertical stabilizer is easily damaged without it. The main vertical post, which mates with the aft end of the fuselage, must be spruce or carbon-laminated balsa.

A pine nose block is best to resist damage. All four wingtips and the canopy are carved from balsa. The receiver and switch/charging jack go in the canopy area.

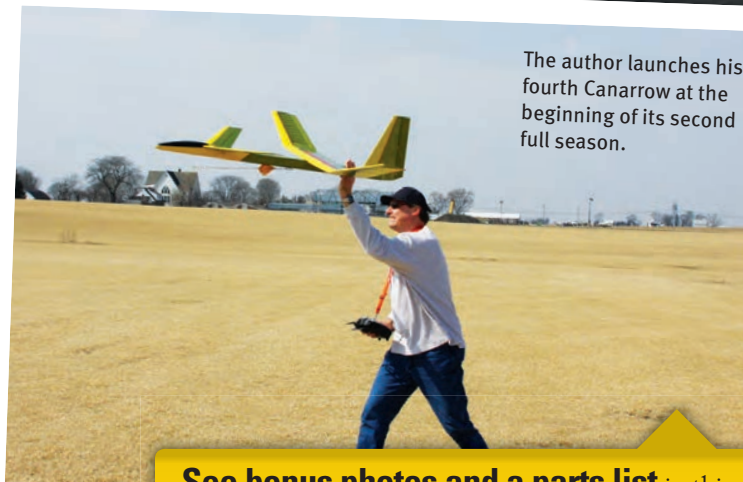
The finished model will balance with little or no extra balancing weight. Flying weights have varied from a weight-optimized 35 ounces to a strength-maximized 41 ounces.

Flying

The balance point is 20³/₈ inches ahead of the fuselage end point (as marked on the plans). Balanced at this point, the model will fly stably and predictably from the first hand toss.

The back of the towhook should be 1/8 inch ahead of the CG. The model will pull hard during launch at that point, but it will remain stable and resist popping off the line. The recommended control throws are 30° up/down for the elevators and 45° left/right for the rudder.

The Canarrow is strong enough for a winch, but as with any other wooden sailplane, it can only take so much abuse. It really comes into its own on a hi-start. I have used the



The author launches his fourth Canarrow at the beginning of its second full season.

See bonus photos and a parts list in this month's tablet app and on www.ModelAviation.com.

Northeast Sailplane Products medium-size Pinnacle and the slightly less-powerful Dynaflite standard hi-starts. The model will get a full launch from either. It should not require any elevator input on the line.

In the air, the Canarrow flies as though it's larger than a Two-Meter Sailplane. Its 750 square inches of wing area compares favorably with traditional wooden Two-Meter aircraft such as the Goldberg Gentle Lady and Great Planes Spirit, which have roughly 670 square inches of wing area.

Handling is conventional for an RES Sailplane. The large vertical stabilizer makes it responsive and helps indicate lift. It's buoyant and ranges well.

The biggest difference between the Canarrow and a conventional design is that pitch does not vary as much with changes in speed. Small changes in pitch trim will change the flying speed. The deck angle of the fuselage stays remarkably flat even while climbing in lift.

The model has a single spoiler on the main wing. Deploying the spoiler causes the nose to pitch sharply up. The elevator moves in the opposite direction from a conventional design (the elevator moves up for a nose-down command and vice versa).

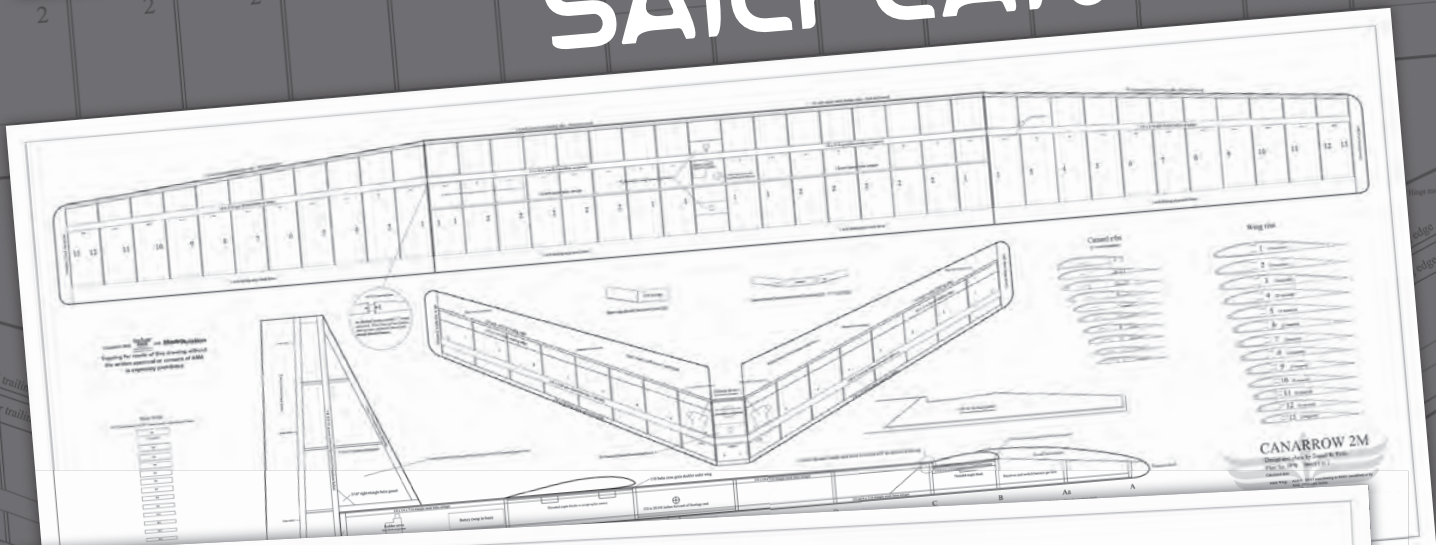
Accordingly, the pitch compensation for spoiler deployment is to also spoil the forward wing with a down-elevator command. A linear program mix will keep the fuselage level. The combination is effective for descent and spot landings.

The Canarrow is a fun and rewarding model that will bring a smile to anyone who builds it. 🛩️

—Daniel Fritz
daniel_fritz@outlook.com

CANARROW

SAILPLANE



The only things missing on the Canarrow are control horns, linkages, and lettering on the tail. The solid-mahogany spoiler panel is finished in clear, water-based urethane. This model is built to the specifications of the plans in the article and the parts were laser cut.

SPECIFICATIONS

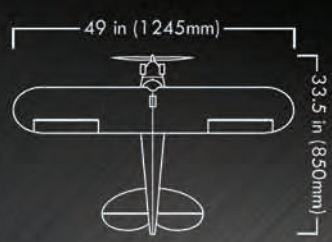
Type:	RC Sailplane
Skill level:	Intermediate builder; intermediate pilot
Wingspan:	112 inches
Length:	55 inches
Weight:	40 ounces
Radio:	Four channels, four Hitec HS-65HB servos
Construction:	Balsa, plywood
Finish:	Oracover



PIPER CUB J3 1245mm



The new Dynam Piper Cub J3 is ready to fly with all electronics pre-installed including a 2.4Ghz 4CH transmitter, a receiver, a charger, and a lipo battery. Constructed with EPO material, this plane is exceptionally durable. It is complimented with remarkable details including a tinted clear canopy as well as a set of front and tail landing gears. This trainer is able to fly with 3D maneuvers and is fairly crash resistant. It takes off and elevates like a champ and can be flown even in windy conditions. The Piper Cub offers a great experience and plenty of fun for pilots of all skill levels, while providing a stable platform for beginner pilots. Get yours now while supplies last!



SPECIFICATIONS

- RTF: Ready to Fly straight out of the box.
- Easy to assemble with pre-installed electronics.
- Beautiful design and realistic details.
- Durable pre-colored foam fuselage, wings, and tail.
- Construction: Lightweight, strong, and crash resistant.
- Flight: Effortlessly depart from the ground or your hand.
- Rechargeable 11.1V 2200mah Li-Polymer Battery
- Full function 4-Channel compatible transmitter.
- 30 amp brushless electronic speed controller.
- 90 Minutes auto peak detection charger.
- 20 minutes flight time. Upgradeable.

Flying Weight: 1000g (1kg)

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<p>5CH RTF 5CH ARF</p> <p>DYNAM FW 190 1270mm</p> <p>\$126.70</p>	<p>5CH RTF 5CH ARF</p> <p>DYNAM P51D 1200mm</p> <p>\$169</p>	<p>5CH RTF 5CH ARF</p> <p>DYNA ME-262 1500mm</p> <p>\$194.50</p>	<p>5CH RTF 5CH ARF</p> <p>DYNAM F6F 1270mm</p> <p>\$198.95</p>	<p>6CH RTF 6CH ARF</p> <p>AIRFIELD T28 1450mm</p> <p>\$269</p>	<p>6CH RTF 6CH ARF</p> <p>AIRFIELD F4U 1450mm</p> <p>\$289</p>
<p>6CH RTF 6CH ARF</p> <p>DYNAM P-51 1450mm</p> <p>\$274</p>	<p>6CH RTF 6CH ARF</p> <p>AIRFIELD ZERO 1450mm</p> <p>\$279</p>	<p>4CH RTF 4CH ARF</p> <p>TECHONE RC VENUS EPO 828mm</p> <p>\$83.50</p>	<p>4CH RTF 4CH ARF</p> <p>TECHONE RC TEMPO EPP 1000mm</p> <p>\$119</p>	<p>3CH RTF 4CH ARF</p> <p>SYMA S107C W/CAMERA</p> <p>\$33.08</p>	<p>4CH RTF 6CH ARF</p> <p>HERO RC H911 iROCKET</p> <p>\$44.95</p>
<p>6CH RTF 6CH ARF</p> <p>WALKERA MASTER CP</p> <p>\$119</p>	<p>6CH RTF 4CH ARF</p> <p>DYNAM CARBON E-RAZOR 450</p> <p>\$219</p>	<p>4CH RTF 4CH ARF</p> <p>EXCEED RC LADYBIRD V2 DEVO 4</p> <p>\$49</p>	<p>4CH RTF 4CH ARF</p> <p>WALKERA INFRARED QUADCOPTER</p> <p>\$109</p>	<p>4CH RTF 6CH ARF</p> <p>AEROSKY P1 QUADCOPTER W/LED</p> <p>\$239.95</p>	<p>6CH RTF 6CH ARF</p> <p>AEROSKY P3 HEXACOPTER</p> <p>\$309</p>
<p>6CH RTF 6CH ARF</p> <p>AEROSKY C6 QUADCOPTER</p> <p>\$389</p>	<p>6CH RTF 6CH ARF</p> <p>WALKERA MINI CP</p> <p>\$149</p>				

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14SG

14-Channel 2.4GHz Computer Radio System

Everything you want...and more.

The 14SG makes 14-channel control more affordable – and easier to enjoy – than ever before. All the features that today's pilots want most are built-in, like innovative 2.4GHz FASSTest technology.

Since the 14SG is compatible with FASST and S-FHSS protocols, users can fly with virtually any Futaba 2.4GHz air receiver. Futaba telemetry sensors (sold separately) let the 14SG transmit and receive telemetry data, including real-time vibration alerts.

Flybarless gyro support makes the 14SG perfect for heli pilots. Rubber hand grips and adjustable dual bearing gimbals provide superior in-flight "feel." Pilots can even download free online software updates using SD or SDHC cards.

We're just scratching the surface. For the full scoop on the 14SG, visit futaba-rc.com!



Futaba

futaba-rc.com/118a



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Photos by the author

Fourteen channels and telemetry at a bargain price

FASSTest technology ... flybarless gyro support ... S.Bus programmability ... telemetry ... holy smokes! When searching for a new radio, users are faced with myriad choices on the market today and many of them look good.

Fortunately, it is now possible to buy a radio that will last you for many years and it's backed by a company with a solid history of reliability and support. The new 14SG from Futaba is incredibly priced for a radio with its number of features. The backward compatibility and user-capable updates take the worry out of buying a new transmitter.

FASSTest is the latest revolution in Futaba 2.4 GHz technology and makes the 14SG a bidirectional radio system capable of supporting a range of telemetry functions. Don't worry if you have several aircraft already set up with older FASST or S-FHSS systems, because you can simply select that in the setup menu and continue to use them.

Each memory slot will maintain whatever mode you select and there are many memory slots! The radio has 30-model memory and with the installation of an SDHC card, it becomes virtually unlimited.

Where to Begin

The radio comes in airplane and helicopter versions, but each is capable of doing both, along with sailplanes. The primary difference is the ratchet on the throttle and placement of the throttle hold and momentary switches.

I got the airplane version, but because I prefer a smooth throttle, I crimped a piece of brass tube over the ratchet arm. That allows me to have smooth throttle and still adjust tension. You no longer have to remove the back of a radio to adjust tension; pop off the grips and use a screwdriver to adjust the screws.

The radio has an SD card slot that will accept nearly any size card. I installed a 32 GB SDHC card and as soon as I turned on the radio, it



The top right quadrant has three 3-position switches and a momentary spring-loaded switch. To the left of the front switch is a digital dial for volume or other function use. The two front switches are different lengths for easy identification.

have a radio that is designed to balance perfectly when hung on the loop.

The base flares slightly to ensure the radio sets firmly upright on the bench. You won't be afraid that your radio will tip over.

Stick lengths are adjustable and the digital trim buttons are well placed. With an eye toward the future, there is an audio output plug on the back of the transmitter. Trainer port and S.Bus connectors are hidden behind a small cover on the back of the radio, which protects them from dust and dirt buildup.

My one hesitation when I got my radio was the "sensor touch" wheel. Years ago I had an iPod with a similar device and I didn't like it. It always seemed to argue with what I was trying to do. My fears were unfounded because the sensor touch wheel on the 14SG works like a champ. After a few seconds, I was easily flying through the programming windows.

The four techniques you use are one short tap, two short taps, touch and hold, and scroll. That's self-explanatory with the possible exception of scrolling. To do that, simply slide your finger around the perimeter of the sensor in a circular motion.

Another great feature is the separate exit button located below the throttle stick that allows you to get out of a menu without having to scroll to an exit selection. After you get used to the program methodology, you can zoom through the screens.

I'm No Programming Genius

That's one of the beauties of this radio—you don't have to be. Whenever I try a new radio, I attempt to program a simple airplane without reading the manual beyond the initial charge and update information.

Let's face it, most of us just want to get an airplane in the air and we'll learn more as we go. This radio has templates for everything and the



The top left quadrant is set up the same way except instead of a spring-loaded momentary switch toward the rear, it uses a two-position switch commonly used for throttle hold, but is fully programmable.

detected it and asked to format it. It *must* be formatted by the Futaba radio and not on your computer.

When it is formatted, it can only be read using Futaba's computer software. My radio arrived with the latest software version, but if it hadn't, I could simply download the update to the SD card and the radio would install

it. No more sending the radio off as updates are developed. This opens the possibility of adding endless features to the programming.

The 14SG is not overly clunky or heavy. At 32 ounces, it doesn't wear you out, but it has a solid feel and excellent balance. If you fly using a neck strap, you'll be glad to finally

layouts are intuitive. Without the help of the manual, I quickly set up a model employing two aileron servos, two flap servos, two elevator servos, one rudder servo, ESC, and three electric retracts!

I didn't set up mixes for elevator/flap or rudder/aileron, but the choices are there to easily do it. I was able to do the same for my Discus Launch Glider and T-Rex 450.

After the basic setup was done and I knew it was all working, I looked further into the manual to tweak and adjust things more to my liking; however, I could have gone flying within minutes of getting the radio unpacked and charged.

Ultimate Flexibility

I mentioned that the 14SG could be used with any of the current 2.4 GHz technologies Futaba employs, but its flexibility goes far beyond that. I never liked being forced to accept the channel and switch assignments manufacturers predetermined for me. For years, I used a radio that allowed me to map channels the way I wanted them. I can once again do that, because Futaba saw fit to build that flexibility into the radio.

There is nothing easier than setting up a four-servo biplane by assigning each servo its own channel! They are still all controlled and trimmed with the aileron stick and trim button, but each can be perfectly dialed in using its own subtrim during the build. The same goes for a twin-servo elevator. This feature alone would have been enough for me to buy the 14SG, but when combined with everything else it had to offer, it was a no-brainer!

Safety Matters

When it comes to safety, Futaba has stepped up the game. When you turn on the radio, there is a screen asking if you wish to transmit radio frequency. Radios used to automatically send the signal. Why do we care? In this crowded environment of large fly-ins, there is the possibility of hundreds of radios being on at the same time, especially when you take into account the ones actually out on the flightline and the ones being used in the pits.

We've become complacent with the advent of the 2.4 GHz technology, but there can still be interference with band saturation by large numbers of radios being on at the same time. This allows us to do some radio programming in the pits without ever sending a signal through the air. To check the settings, you'll eventually have to transmit and check the model, but you can do much of the

The System menu is ready for the initial radio setup.

```

SYSTEM MENU
-----
TRAINER    : START SEL.
DISPLAY    : AUTO LOCK
USER NAME  : INFO
SOUND     : SBUS SERVO
H/W SET   :
  
```

The Linkage menu is the next step to use when programming a new model.

```

LINKAGE MENU           1/2
-----
SERVO    : SUB-TRIM
MODEL SEL. : REVERSE
MODEL TYPE : FAIL SAFE
SYSTEM   : END POINT
FUNCTION  : SRVO SPEED
  
```

The Model menu contains the mixes and fine-tuning options.

```

MODEL MENU           1/2
-----
SERVO    : AIL DIFF.
DUAL RATE : FLAP SET.
PROG. MIX : AIL->CMBFLP
THR CURVE : AIL->RUD
THR DELAY : CAMBER MIX
  
```

The Info screen is under the initial System menu and displays the product number, identification number, language, software version, region, SD card size, and available space.

```

INFO
-----
PRODUCT    130200361
RF ID      132600062
LANGUAGE   ENGLISH
VERSION    1.4
AREA       AMERICA
CARD SIZE  0/3746
  
```

The Function menu is found under the Linkage section and opens the door to completely customizing mapping channels, controls, and trims.

```

FUNCTION           1/4
-----
                CTRL TRIM
1 AIL           J1   T1
2 ELE           J2   T2
3 THR           J3   T3
4 RUD           J4   T4
  
```

The Servo monitor allows you to see the movement of all controls and adjust them without having to connect to your model. Using this properly will prevent any linkage interference when finalizing setups.

```

SERVO OFF          DG1 DG2
-----
1 2 3 4 5 6 7 8
| | | | | | | |
| | | | | | | |
| | | | | | | |
+0 +0-130 +0-100 +0 -98+102
  
```

Telemetry options depend on what sensors are purchased and connected. The quick reference screen can be brought up with one touch and alarms can be set for each parameter.

```

TELEMETRY          1/3
-----
Rx-BATT.    1 TEMP.
            0.0V -----
RECEIVER    SBUS-01T
EXT-VOLT    2 RPM
            0.0V 0rpm
RECEIVER    SBUS-01RPM/0
  
```



The bottom opens to reveal the 6-volt, 1800 mAh NiMH battery pack and SD card slot.

programming without transmitting RF signals.

I fly electrics, glow, and gas aircraft and I always set up a mix that allows me to use one of the switches to kill my engine or motor. This is necessary for safety, especially with electrics. A gas engine won't run up if you accidentally hit the throttle in the pits before you start the engine, but once armed, an electric is an accident waiting to happen.

The 14SG's programming allows you to tell it that the throttle is a motor and from there you can adjust the settings. It essentially assigns a kill switch that prevents anything from happening if you hit the throttle and the ESC is armed. This should be a mandatory feature on all radios and Futaba has seen the importance and taken action.

For gas/glow fliers, there is an idle-down and throttle-cut function that allows you to bring an engine instantly to idle or shut it down completely with the flip of a switch. These functions are set up to work at throttle settings below 30% and are adjustable for each model without affecting the others.

Program Sequence

The 14SG shines in this regard. The three program sections are logically arranged to make it a sequential process from left to right.

The System menu sets up the radio options that affect how the radio functions. This is where you set up the

trainer functions allowing the student to have as few or as many controls as the instructor wants.

It's also where you adjust the display, user name, sound, hardware (stick reversal, mode, calibration), start setup, auto lock information regarding the transmitter, and program the S.Bus servo. Think of these as global settings that you will seldom access after you customize your radio.

The Linkage menu is the next step around the sensor wheel and is where you begin to program each model. In this menu you will have access to:

- Servo (also accessible through the "mon" button beneath the aileron stick)
- Model select
- Model type
- System select mode of 14-channel FASSTest, 12-channel S-FHSS, FASST-Multi, or seven-channel FASST
 - Function: choose your channel mapping and trim adjusters
 - Subtrim
 - Reverse
 - Fail-safe
 - End point (think ATV or travel)
 - Servo speed (perfectly adjust your retract or flap speed)
 - Throttle cut
 - Idle down
 - T1-T4 (set trim sensitivity)
 - Warnings (low battery, throttle cut, idle down, etc.)
 - Telemetry
 - Sensor
 - Data reset

Each of these settings only affects the selected model and can be changed without affecting another model in the memory. The same applies for the next section.

Model menu is the next segment of the sensor wheel and contains all the sections for fine-tuning the model and its mixes. Most are self-explanatory and many are preset templates for the most frequently used mixes. Here's a rundown of the model menu:

- Servo (same as in Linkage menu for monitoring servo movements)
- Dual rate
- Program mix (these are five free mixes for customization)
 - Throttle curve
 - Aileron differential
 - Flap set
 - Aileron to camber flaps
 - Aileron to rudder
 - Camber mix
 - Elevator to camber
 - Camber flaps to elevator
 - Rudder to aileron
 - Rudder to elevator
 - Snap roll
 - Air brake
 - Gyro
 - Motor

Special Considerations

Several areas might benefit from further explanation, although a radio with the 14SG's capabilities would require a book to address everything. Practicing with the transmitter in hand and a few test aircraft is the best way to learn.

Flight Conditions

Flight conditions can be selected in the sailplane or helicopter modes, but the option is unavailable in the airplane mode. It's not a problem in actual usage. There is no reason not to program a powered airplane using the sailplane model type, thereby giving you five flight conditions.

The wing-type selections will give you enough options to set up dual aileron servos and dual servo flaps, along with more mix options. You will lose the automatic templates for variable pitch propellers, snap rolls, and

AT A GLANCE ...

SPECIFICATIONS

Futaba 14SG Transmitter

Transmitting frequency:	2.4 GHz band
System:	FASSTest 14CH; FASSTest 12CH; FASST MULTI; FASST 7CH; S-FHSS switchable
Power supply:	6-volt HT5F1800B NiMH battery (optional 6-volt LiFe battery)
Dimensions:	180 x 190 x 50 mm
Weight:	32 ounces

Futaba R7008SB Receiver

Receiving frequency:	2.4 GHz FASSTest system
Power requirement:	3.7-7.4 volts (voltage range 3.5-8.4 volts)
Current drain:	75 mA
Extra voltage port:	0-70 volts DC
Size:	0.98 x 1.9 x 0.56 inches
Weight:	0.38 ounces

WHAT'S INCLUDED

- 1800 mAh NiMH transmitter battery
- LiFe spacer for optional FT2F2100B/FT2F1700B battery pack
- 12-volt DC battery charger
- R7008SB eight-channel, high-voltage receiver
- Manual
- Switch harness
- Neck strap

PLUSES

- Programming for airplane, helicopter, and sailplane.
- Backward compatibility with FASST and S-FHSS.
- SD card allows for easy software updates.
- Backlit screen.
- LiFe battery option.
- Fully assignable switches and controls.
- Good ergonomics.

MINUSES

- No smooth throttle option for airplane version.
- Extensive features deserve a larger user manual.

rudder-to-elevator mixing, but with the five free mixes, you can make up for that.

Another benefit of setting a model up in the sailplane template for flight conditions is the ability to have various mixes and trims set that can be programmed to work across each condition or only within one.

There is also a provision to prioritize the switches, so if you accidentally flip a switch that would put you into a mix that would interfere with one you're presently using, the switch can be set to have a lower priority so it would be ignored if the first switch was already activated. It's easier than it sounds.

Using flight conditions can present a situation where changing the trim of something might be necessary, but not when going to one of the other conditions. You can program across-the-board trims or program them only within that one condition. The flexibility is incredible.

Sensor Touch

Depending on your method of holding a transmitter, your palm could touch the sensor and possibly make a change. This can be prevented by locking the sensor either automatically or manually.

I'm a thumb flier when I fly airplanes, but I'm a finger flier when I fly helicopters. Because I don't use a tray, I have heard a beep telling me my palm has touched the sensor while flying a helicopter. It hasn't made any changes, but you can set the lock to automatic or set it manually as I do.

Start Select

This feature in the System menu allows you to customize how you want your radio to start. You can set it to have the model select menu come up when the radio is turned on or set so that the last selected model is the one still available. If there are four aircraft that you frequently fly, you could set it so those are the choices you see when you power on the radio.

Motor Function

This feature is valuable for anyone using an electric motor to power

an airplane or sailplane. The safety feature alone makes buying this radio worthwhile, but the electric-powered sailplane fliers are going to fall in love with it.

In the past, Limited Motor Run pilots had to use the throttle stick for the motor, losing the ability to use it for mixes. Now the motor can be set up on a switch, the ramp-up speed of the motor programmed, and the throttle stick used the way experienced sailplane pilots used it before electric power.

Imagine using various positions on the throttle stick to deploy flaps, crow, extend the landing wheel, or change camber—all on one stick.

Helicopters


Helicopter pilots will appreciate the ease of setting up a machine and the options the 14SG offers. During initial setup, there are six swash configurations from which to choose including the increasingly popular 140° setup. Flybarless users will find all the options they need including three-axis gyro support.

Conclusion

I've barely scratched the surface of what this radio can do. This is a top-end radio at a mid-level price. The flexibility of the Futaba 14SG will take you down a path of programming that most haven't enjoyed before.

The available updates for future improvements are a huge plus and the SD slot makes it even better.

Free channel mapping gives the user a clean slate if he or she doesn't like the standard templates. Learning a new radio usually brings with it a little cussing and fussing, but this one brought nothing but smiles each time I found another thing I could do with it.

I may be in love! 

—Greg Gimlick
maelectrics@gimlick.com

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CENTRAL PNEUMATIC

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SPECIFICATIONS | HAN4625

Wingspan	89.0 in (2.25 m)
Length	85.0 in (2.15 m)
Wing Area	1430 sq in (92 sq dm)
Weight	18.0–21.0 lb (8.20–9.50 kg)
Engine	50–62cc gas
Electric Motor	50–60cc equivalent
Transmitter	4+ channel
Servos	6–7 servos (5 for EP)

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of this sport ARF in the app and at www.ModelAviation.com/meridian10cc.

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premium cup
of coffee**

A few issues ago, you may have read a review that I wrote about the Hangar 9 Taylorcraft BNF. I mentioned how it is a great choice for a first gasoline-powered model—and it still is.

Now I am reviewing the new Hangar 9 Meridian, powered by the company's new Evolution 10GX gasoline engine. This combination is a great gas-powered option if you want something slightly smaller and less expensive.

The Meridian can also be powered by alternatives such as a .61 two-stroke or .72 four-stroke glow engine, or by electric power. Let's explore what the Meridian is all about!

Opening the box, I was surprised to find one thing missing: the miles and miles of packing tape that many manufacturers use to lock everything in place for shipping. Even without tape, the parts were neatly held in place and suffered no damage. The pieces of the airframe were individually protected in polybags. Other smaller, painted pieces were wrapped in paper then bagged.

The Meridian arrived wrinkled. It's

possible that cold weather caused it. I spent approximately 30 minutes using my heat gun to shrink everything back into place. If your model arrives in the same state, use care in areas where the striping and decals are located so they don't melt or pull away from the covering.

While tightening the covering, I looked at the airframe's design and construction. The wings, fuselage, and control surfaces are constructed from laser-cut balsa and plywood. The wings are a traditional rib-and-spar design with sheeting on the LE and capstrips. The fuselage has plywood slab sides and a built-up turtledeck. Lightening holes are strategically placed to save weight.

Several fiberglass pieces are included and help dress up the Meridian. The cowl comes as a single piece that must be cut to suit the type of power plant you use. The wheel pants are pre-painted to match the fuselage. The nose gear pant needs to be drilled to accept the landing gear.

Hardware can make or break an ARF, and the Meridian's hardware was not



The Meridian is built from laser-cut plywood and balsa. The airframe is covered with UltraCote in an eye-catching red, white, and black color scheme.

only good quality, but complete. From the tank to the control hardware, engine mounts, and landing gear—everything you need is included. The main gear is solid, prepainted metal and the nose gear is a steerable unit.

The test model for this review will be powered with the Evolution 10GX gasline engine. If you want to go a different route—glow or electric—the parts are also included for these options. I was surprised to find a mounting box for electric motors included.

Construction

I won't review all of the steps of construction. If you'd like to see each of the steps, you can download the Meridian's manual listed in the "Sources" section.

The aircraft is a standard ARF. The builder will need to do some work with epoxy, CA, drilling, grinding, etc., and that's a good thing. There's nothing extraordinary in the steps—only good, basic building skills.

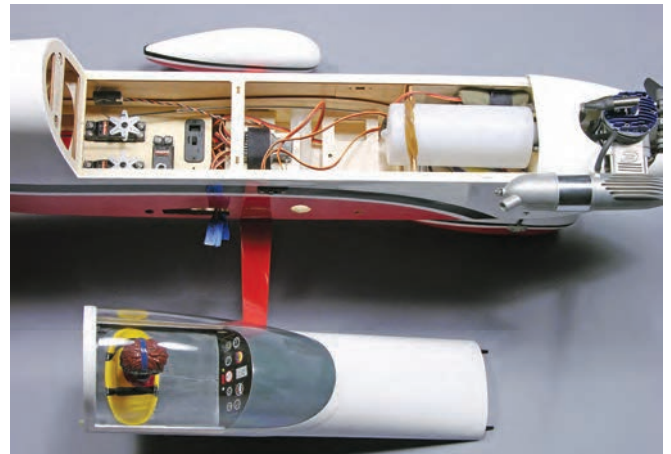
The wing halves are tackled first. CA-type hinges are fitted in the precut slots for the ailerons and flaps then glued into position. The servos are mounted inside the wing on prebuilt mounts attached to hatches. After routing the servo leads through the wing, the servo hatches are screwed into place.

Next is the installation of the control horns and pushrods. Each of the control surfaces has premarked positions where the control horn should be mounted. After drilling the proper holes and stiffening the wood with thin CA, everything is bolted into place. The control rods are precut to the proper lengths and feature a Z-bend on one end, and threads on the opposite end where the metal clevis is twisted into place.

With the wings finished, work on the fuselage begins. The wing halves are fitted to the fuselage by sliding them into position on the aluminum wing tube. When they are secured, the elevator is attached to the stabilizer and then the stabilizer is epoxied into the fuselage after it is measured to make sure it correctly aligns. The vertical fin is also epoxied into place, and the rudder is attached with more CA hinges.

After that has cured, begin the radio installation. The canopy doubles as a large hatch and allows access to the built-in servo trays. It is held in place with a few magnets, a couple of hooks, and two front-alignment pins. All of this is preassembled at the factory and works well.

Removing the hatch requires sliding the canopy forward approximately 1/4 inch, then lifting it off the fuselage. When



After the canopy/hatch is removed, you will see a large opening that provides easy access for the radio, batteries, switches, and the fuel tank.

AT A GLANCE ...

SPECIFICATIONS

Model type:	Sport ARF
Skill level:	Intermediate builder; beginner/intermediate pilot
Wingspan:	69 inches
Wing area:	880 square inches
Airfoil:	Semisymmetrical
Length:	55.5 inches
Weight:	7-8 pounds
Power system:	10cc gas; .52-.61 two-stroke or .62-.72 four-stroke glow; .46 electric
Radio:	Five-channel minimum
Street price:	\$229.99

TEST-MODEL DETAILS

Engine used:	Evolution 10GX (10cc gasoline)
Radio system:	Spektrum DX18 transmitter; Spektrum AR7010 receiver; seven Spektrum A6060 digital servos; four-cell 1200 mAh NiMH receiver battery; five-cell 2100 mAh NiMH ignition battery

Propeller: Evolution 13 x 6

Ready-to-fly weight: 8 pounds

Flight duration: 15-20 minutes

PLUSES

- Laser-cut balsa and plywood used for construction.
- Includes tank, wheels, all control hardware, and plastic spinner.
- Tricycle gear for easy taxiing.
- Plug-in wing halves for easy transportation.
- Motor box and battery tray included if you decide to use electric power.
- Canopy doubles as a large hatch for quick access to radio and batteries.
- Wonderfully stable in the air, yet capable of mild aerobatics.
- The included flaps are effective.

MINUSES

- Included fuel line wasn't long enough to cut to the lengths mentioned in the manual.
- Five ounces of nose weight were needed to correctly balance the aircraft.



This cockpit detail comes as you see it from the factory, including the pilot. It's a nice touch and makes the Meridian slightly more realistic.

it's removed, you have access to the inside of the fuselage, all the way to the firewall.

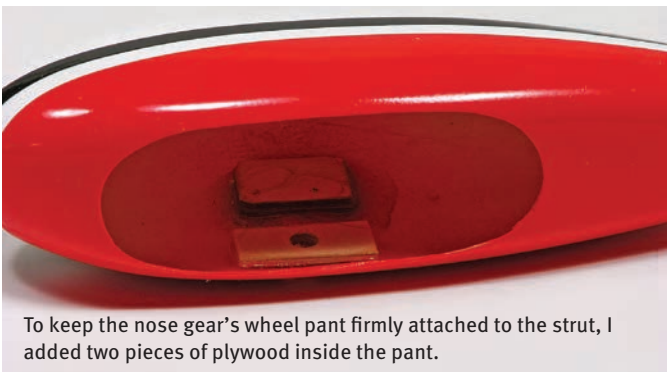
After the remainder of the radio is installed, the control hardware is added. Pushrods for the elevator and rudder slide through premounted plastic tubes to

guide them through the fuselage. Clevises and control horns are mounted in place, using the same techniques as on the wings.

Mounting the landing gear is quick because most of the work is completed at the factory. The main and nose gear attach with a few screws that thread into premounted T-nuts in the fuselage. Each of the axles requires grinding flats for set screws to hold to. Both of the main gear's wheel pants are held in place by the axle's mounting nuts. When tightened, the detent molded into the pant allows the gear leg to be firmly held in position. But when it comes to the nose gear pant, slightly more work is required.

As a product reviewer, I'm instructed to follow the manual *exactly*, not using my judgment on any of the steps. According to the manual, the nose gear should be held in place by silicone, between the pant and strut, then a plastic strap is attached to offer more grip. This requires the screw's threads to bite into the thin wall of the fiberglass wheel pant. There's no backing wood inside the pant to thread into. I tried it this way, but with the engine's vibration, I was unhappy with the way the wheel pant moved.

I took that wheel pant off and cut two small pieces of $\frac{3}{16}$ -inch light plywood. I drilled a hole in one piece so that the axle could push through. This piece acts as a spacer on the axle, allowing you to push the wheel collar firmly against it, locking it into place. The other piece gives the plastic strap's screws something to thread into other than the thin wall of fiberglass. Both pieces were epoxied into position, then



To keep the nose gear's wheel pant firmly attached to the strut, I added two pieces of plywood inside the pant.

everything was reassembled. It worked much better, and held the wheel pant securely in position.

The nose gear's steering arm required sanding and trimming to fit into the nose gear mounting bracket without binding. Spend time on this to make sure it properly fits and smoothly rotates, but do it a little at a time so you don't remove too much material.

I want to note that the supplied wheels are lightweight foam tires with plastic hubs. However, they look as though they are solid rubber. The foam has a coating on the outside of it, giving them a smooth finish.

The engine is mounted to the fuselage. The firewall came predrilled for the correct spacing to accept the Evolution 10GX engine. All that is left to do is to bolt the two plastic mounting rails into position, then measure, drill, and mount the engine.

If you decide to go with electric power, the supplied motor-mounting box bolts into the same holes as the engine beams, then the engine bolts into place on the front of the box. You'll need to glue the wooden battery tray in place behind the firewall.



The prepainted fiberglass cowl requires trimming to fit around the engine. Take your time because if you cut too much off, you can't put it back!

The manual calls for a Power 46 motor. Horizon's specifications state that the Power 46 is for models weighing up to 7 pounds. With the Meridian in the 8-pound range, I would step up to the Power 60.

With the nose gear and throttle pushrods in place, the fuel tank is assembled and mounted. It's held in place with a rubber band and fits into the cutout in the firewall.

I haven't written much about the nicely illustrated manual, but noticed something as I progressed through the build. At the start, it is quite detailed. It explains which screw goes where, where to place a drop of CA, etc. More than a page is devoted to detailing how to attach an aileron servo to its mount.

As the build progresses, however, the directions in the manual become less explicit. When assembling the fuel tank, there is no mention of bending the tubing for vent lines, nor is there an explanation for which fuel line goes where. Also, the

Evolution 10GX

One of the most appealing things in reviewing the Meridian was gaining hands-on experience with a new gasoline engine, the Evolution 10GX. It is a conversion of Horizon's Evolution .60NX (10cc) two-stroke glow engine. Using the same size crankcase and beam mounting, it can be considered as an alternative power source for any model in the .46-.60-size range.

Its most appealing feature is that it uses gasoline—a less expensive alternative to nitro-based fuels. The only penalty in switching to gas is the extra weight of the ignition module and ignition battery needed to provide the spark. For the Meridian, however, this was a good choice because it helped add nose weight needed for proper balance.

Many small gas engines use the larger, Walbro-type carburetors, but this one doesn't. Evolution's gas carburetor design is larger than those found on similarly sized glow engines, but not much larger. It also features the same high- and low-speed needle designs as a glow carburetor, so setting adjustments is quick and easy.

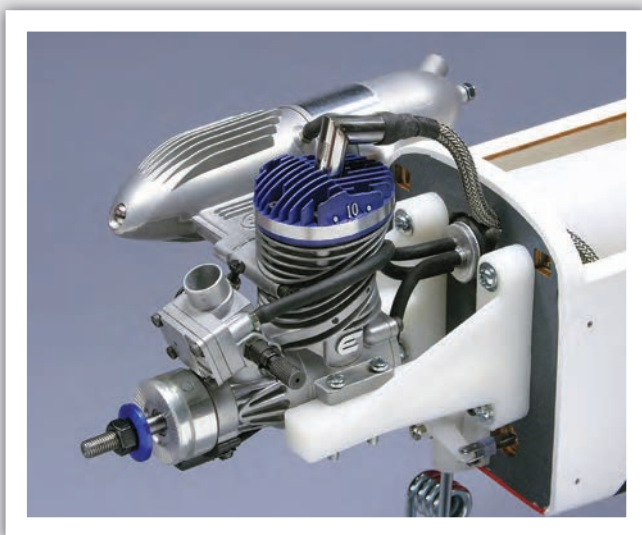
I wanted to make sure that the engine would start, so I ran it for a couple of minutes on the ground before making the trip to the field. I recommend an electric starter for the first few starts. After some cranking and high-speed needle adjustments, the engine roared to life.

For the initial airborne break-in period, the low idle was approximately 2,100 rpm and rough, noticeably shaking the fuselage. High speed topped out at 9,900 rpm. During these first flights the high-speed needle needed to be adjusted a few times for more top-end speeds. The idle also became smoother.

Horizon supplied an Evolution 13 x 6 composite propeller with the review. With it, the 10GX comfortably idles at 1,900 rpm and tops out at 10,650 rpm.

That's far from the 16,000-18,000 rpm of a glow engine, but when paired with a sport flier such as the Meridian, it works well.

The only downside is the need



to frequently clean the Meridian during the initial break-in flights. The position of the muffler exhaust allows the starboard side of the fuselage, wing, and tail surfaces to become covered in a thin layer of unburned oil. This lessens with time, but is a small price to pay. (I found that a few squirts of Simple Green cleaner speeds the cleanup.)

On the upside, the 10GX provides long run times compared with a similar glow-powered engine. The Meridian comes with a 10.8-ounce tank and the 10GX will take 15-20 minutes to empty it. A typical .61 two-stroke glow engine would drink this tank dry in less than 10 minutes.

Because the spark is supplied by an onboard battery, it won't quit at idle.

If you are looking for a good, .61 sport engine, the Evolution 10GX should be on your radar. The \$199.99 price is higher than a similarly sized glow engine, but if you consider the price of gasoline (\$3-\$4 per gallon) versus nitro-based glow fuel (\$15-\$30 per gallon), it won't be long before you come out ahead. 🛩️

tank comes as a three-line system with no information about what to do with the third line.

None of this was a problem for me, but if this is your first glow/gas build, you need to study the photos or consult an experienced modeler to make sure everything is in the correct spot or fuel could spew everywhere.

The cowl needs to be mounted to finish the Meridian. If you're using an electric motor, simply slide it on and drill the mounting holes. For glow- or gas-powered engines, cut the cowl so that it fits around the engine.

The cowl comes with dimples on the rear to mark where the mounting holes should be drilled. The two dimples on the port side of the cowl won't align with the firewall. Instead, drill into the fuselage side. This isn't a problem, as long as you strengthen the holes with CA.

When everything was in place, I checked the CG for proper balance. Even with the range of 3.3-3.8 inches from the LE, it was tail heavy with the supplied batteries mounted as instructed. I exchanged the supplied lightweight LiPo batteries for larger (and heavier) NiMH packs.

I upgraded the receiver pack's capacity to 1,200 mAh NiMH and the ignition pack to 2,100 mAh. Both were mounted as far forward as possible—underneath and beside the fuel tank, and against the firewall. Doing all this added approximately 5 ounces to the total weight, and allowed the model to balance at the 3.5-inch mark.

Flying

After testing the engine at home to make sure it would start, it was time to head to the field and put the Meridian through its paces. When the engine was started and warm, I taxied around to adjust the nose gear so that it would track straight.

For the first flight, I choose to take off without flaps. Throttling up to three-quarters power, the Meridian used approximately 100 feet of runway then gently rose into the air by holding a slight amount of up-elevator. I threw in a small amount of aileron trim during the first few passes, and the Meridian was dialed in.

Whether you choose to use flaps or not, there are no surprises in landing the Meridian. I recommend using the flaps, because I've had a great time with steep, slow, stall-free approaches.



The Meridian felt rock solid in the air during photo passes. With those out of the way, it was time to fly Cuban 8s. Why? The Evolution manual suggests breaking in the 10GX while in flight, rather than on the bench. The manual says that this should be done by flying at full throttle through a series of Cuban 8s to provide the heating/cooling cycles required for the break-in. After four flights of doing this, the engine should be properly broken in.

With all of that completed, it was time to have fun with the Meridian and see its capabilities. The first thing I attempted was to stall. After climbing several mistakes high, it wouldn't stall, but it lost some altitude as it moved forward. This should be reassuring for any pilot.

In the sky, the Meridian is a great barnstormer. The engine doesn't supply unlimited vertical, but there's more than enough power for decent-size loops, Split S maneuvers, Hammerheads, and more.

When using flaps, the Meridian slows down and is maneuverable. The flaps come into play when landing because you can comfortably approach at slow speeds. The flaps can also shorten the takeoff run, although you'll have to hold some down-elevator to keep the nose gear planted during the takeoff roll.

Conclusion

Hangar 9's Meridian is a good, solid design with no surprises. It's a quick build that you can have ready to fly with only a few nights' work, and it will help you develop building skills

that you can use for future projects.

In the air, it's a rock-solid trainer under low-power settings, or a competent aerobat under higher-power settings. It's also a great model on which to learn the proper use of flaps for takeoff and landing.

By utilizing a tricycle landing gear, ground handling is a breeze. Matching it with the Evolution 10GX makes a great combination of power and affordability, and it will fly all day for only a few dollars of gasoline. 🛩️

—Tom Sullivan

tmsullivan@roadrunner.com

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Evolution
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Meridian manual
www.horizonhobby.com/pdf/HAN5015-Manual.pdf

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Super Cub PA-18 ARF



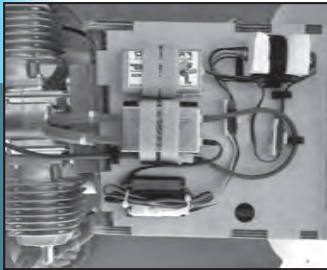
This beautiful, 1/4 scale ARF of the Super Cub has been expertly modeled in stunning detail. Almost every line and curve mirrors the real thing, right down to the shape of the fillet where the fuselage meets the vertical stab. This same attention to detail has been applied to the flight performance.



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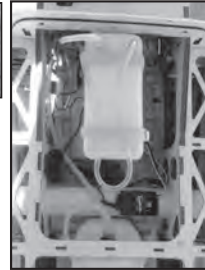
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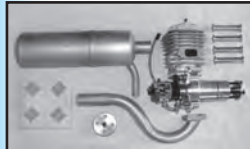


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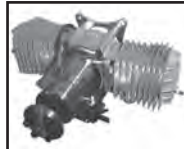
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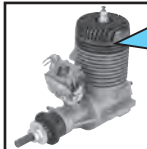
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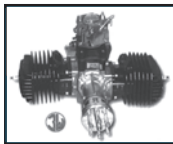
DLE 55CC



DA 150



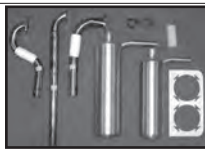
DLE 222



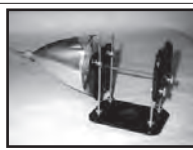
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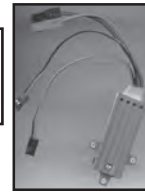
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The AeroWorks Cessna 195 is a beautiful aircraft with classic lines.

Photos by Jay Smith

Scale appeal with a trainer feel

First Impressions

Unpacking the box showed not only a well-built airplane, but care in packaging to keep it in good condition during its travels. The covering required minor attention, which is expected because of heat and humidity changes during storage and transportation. It was easily smoothed out with a heat gun and a cotton glove.

Great care had been taken to organize the parts and hardware in a logical fashion. The hardware was of excellent quality and well suited for its intended purpose. This is a large airplane that requires plenty of surface area to lay out everything.

The aircraft came with a CD containing the building instructions. I may be old-school, but I would prefer a paper manual that I could mark up if I wished. I printed the manual from the CD and it was quite extensive. I think offering both the CD and a paper manual or a choice of the two might be a good idea, even if it slightly increases the cost.

Construction

The Cessna 195 was my first AeroWorks aircraft and I was impressed with the 94-page instruction manual. Although it was as thick as the one that came with my new TV, it was more helpful. Contained within were more than 100 color photos illustrating each step of the assembly process.

The manual was clear, concise, and presented a well-thought-out plan of attack for the build. I will only briefly touch on the assembly process. If you would like to learn more, download the manual from the AeroWorks website listed in the "Sources" section.

The Cessna comes with a detailed cockpit, which includes the instrument panel, yokes, seats, and floor. With a little research and the help of my friend and National Model Aviation Museum director, Michael Smith, we added more detail to the instrument panel and its myriad displays. I also found that the provided yokes are slightly different than the photos found online, but that is minor.

Michael Smith modified the instrument panel adding more detail to the display.

Behind the seats is a tray to mount the rudder and elevator servos. After they were installed, I decided to mount a floor above them to hide the servos and retain the scalelike appearance. What now looks like a cargo bay can be removed for easy access to the servos because it is held in place with Velcro.

The Hitec HS-5645 servos easily mount to the servo hatches and the ailerons and flaps have been prehinged and glued to the wing panels, saving the builder some time. The 4-40 ball link assemblies and aluminum control horns provide sturdy linkage.

Using internal rudder and elevator drive assemblies keeps the tail free of control horns and linkages. That's a nice touch that improves the aircraft's scale outline. The drive assemblies are hidden by the tail cone assembly. I enlarged the hole for the tail wheel assembly in the tail cone to prevent it from cracking if the tail wheel flexed during landing.

When I installed the landing gear, I noted that the fuselage was reinforced in this area. When the gear and the gear cover were installed, the assembly felt beefy and I was confident that it would hold up when flying from grass and making any less-than-perfect landings—not that I would need to worry about that, right?



The 4-40 ball link assemblies and aluminum control horns provide a nice, sturdy linkage.

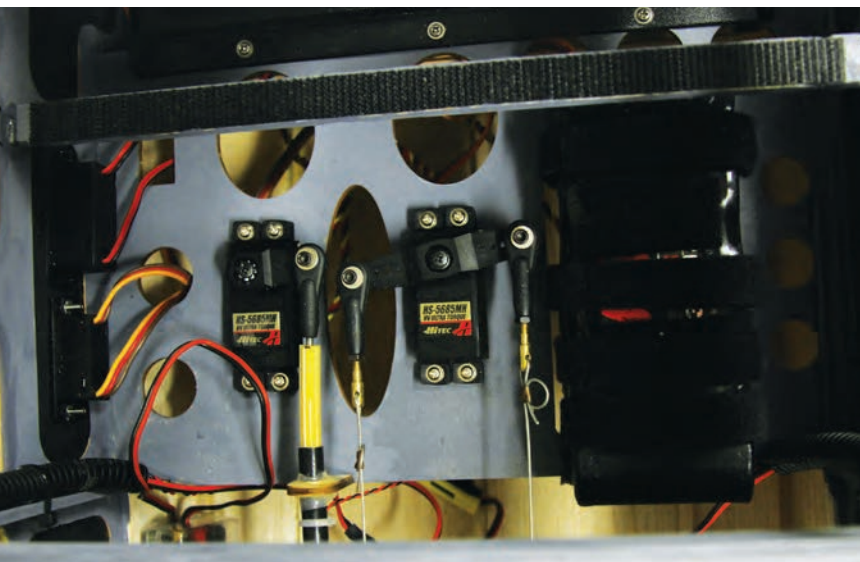
The well-made fiberglass wheel pants complement the aircraft. They also allow plenty of clearance for the wheels so that they can be used even when flying from unpaved runways.

The Syssa Aircraft Performance SAP-180HP gas engine was chosen for this airplane and was easily mounted with the help of the included engine mounting box. The engine uses a Pitts-style muffler and required some trimming for the muffler, the engine head, and spark plug.

One disappointment I have often experienced with ARFs is that either the paint on the cowl doesn't match the covering or the colors don't align with the fuselage. In this case the match was perfect. Thank you, AeroWorks!

The radio installation was easily accomplished, and even with my large hands I could work inside the fuselage without issue. I went with AeroWorks' recommendation and used a McDaniel Remote Switch to operate the navigation lights.

I opted to put them on my gear channel



The cavernous radio compartment provides plenty of room for the Hitec HS-5685 servos and receiver battery.

to be activated at the flip of a switch. Wanting to go all out with the lights, I also installed the optional beacon kit. The beacon lens mount and a hobby knife were used to remove the covering and wood at the top of the fuselage.

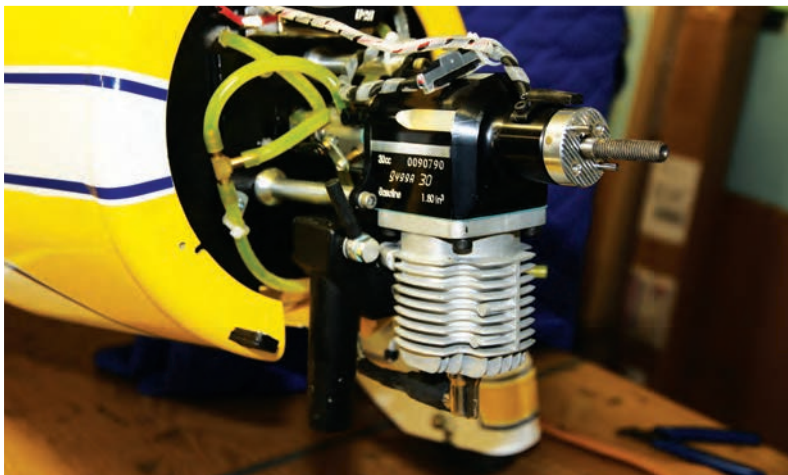
When attaching the wings for final assembly, they are slid onto the carbon-fiber wing tube and then two 8-32 wing mounting bolts, two #8 rubber-backed washers, and two clips are used to secure it. The clips are inserted into the rear aluminum, anti-rotation wing dowels and can easily be dropped inside the fuselage. Using a piece of fishing line securely fastened to them and then tied inside the fuselage will ensure they are not misplaced.

Checking the CG on an aircraft as large as the Cessna is not easy. AeroWorks included the CG Buddy with the Cessna 195. This handy tool allows the builder to balance the airplane without needing an assistant. Mine balanced perfectly at $5\frac{5}{8}$ inches back from the wing's LE measured at the root as stated in the manual.

Control throws were set per the manual for high and low rates using the provided deflection meters. The manual recommends 15% exponential on low rates and 30% on high rates; however, I prefer to "feel" what the aircraft is doing and opted not to use any exponential.

Engine

The SAP-180HP is a beast of a power plant! During the break-in, I never had to turn a screw on the engine. Within two tanks full of the recommended break-in fuel mix, it was idling reliably and provided plenty of power. I used a high-quality, non-synthetic oil mix of 40:1 for initial run and test flights.

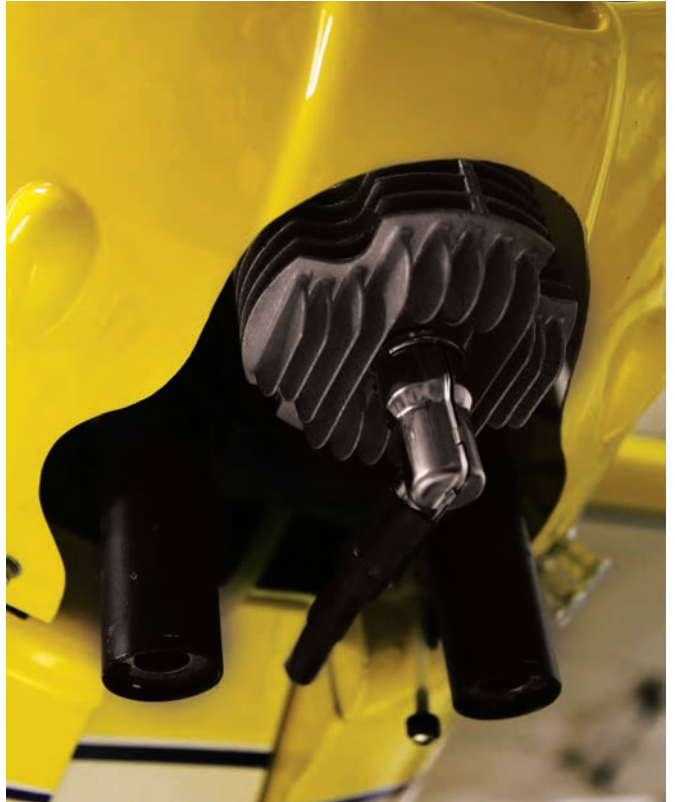


The Syssa Aircraft Performance 30cc engine is beautiful and powerful.

Flying

I opted to fly my first flight on the Cessna from a grass strip and went to Site 4 at the International Aeromodeling Center in Muncie, Indiana. After field assembly, fueling, and preflight, I started the engine and warmed it up. The outside temperature was roughly 55° with a 10-12 mph

Using a template made from cardstock offered an easy cowl modification for the engine.



quartering crosswind.

The Syssa engine provides plenty of power so I slowly advanced the throttle and the 195 lifted off at $\frac{1}{3}$ power in roughly 75 feet. The Cessna was climbing well and I reduced power to maintain a pattern altitude.

Did I mention that this engine was a beast? It never missed a beat until I cut the power.

I flew slow and fast passes for the camera, with and without flaps. This airplane is as honest as it gets. It likes rudder to coordinate the turns, and shows minimal elevator change with flaps at half or full. Also important—it looks great in the air!

One word of caution: the rudder is powerful! It will easily overpower the ailerons if you let it.

If you follow the recommended control surface throws, the Cessna 195 will be a pussycat to fly in a scalelike manner. It slows down well with half flaps showing no bad habits. It cross controls well, allowing the pilot to sideslip it if it is slightly high on final approach.

Although I didn't attempt it, I wouldn't be surprised if the Syssa engine could hover the Cessna. It has plenty of steam to perform basic aerobatics such as Hammerhead turns and loops.

Conclusion

This was my first experience with an AeroWorks aircraft and I am impressed, not only with the quality but also the thoughtfulness that goes into it. Things such as throw meters, the CG Buddy, and providing a thorough instruction manual with countless photos, help ensure a positive experience.



Flaps on the AeroWorks Cessna 195 are deployed for landing. The “N” numbers were added to complement the model’s scale presentation.

AT A GLANCE ...

SPECIFICATIONS

Model type:	Semiscale ARF
Skill level:	Intermediate pilot; intermediate builder
Wingspan:	90 inches
Wing area:	1350 square inches
Airfoil:	Semisymmetrical
Length:	71.5 inches
Weight:	15-16 pounds
Power system:	30cc gas or 1.80-2.10 glow engine
Radio:	Six channels minimum
Construction:	Balsa and plywood
Covering/finish:	UltraCote covering
Street price:	\$ 895.95

TEST-MODEL DETAILS

Motor/engine used:	Syssa Aircraft SAP-180HP
Fuel:	40:1 mix
Propeller:	Xoar 18 x 6

Radio system	Spektrum DX8; AR8000 receiver; four Hitec HS-5645 servos for ailerons and flaps; two HS-5685MH servos for elevator and rudder; JR 3000 mAh, 6-volt Ni-Cd for the radio system and ignition; JR 1150 mAh 4.8-volt Ni-Cd for lights
---------------------	---

Ready-to-fly weight:	17.5 pounds
Flight duration:	Approximately 20 minutes


PLUSES

- High-quality SAE hardware included.
- The fit of the parts and finish are excellent.
- Detailed 94-page instruction manual.
- Flight performance.

MINUSES

- Manual must be printed.

The scale details such as the aluminum spinner, corrugated control surfaces, and hidden control horns in the tail are also appreciated. The fit and finish are also top-notch.

The AeroWorks Cessna 195 appeals to my interest in classic aircraft, while providing a trainer-like stability in flight. The yellow and white color scheme stands out in the air and the added scale detailing and lights provide an aircraft that looks great up close as well. 

—Jack Frost
jefssquared@gmail.com

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Hobbico Tactic, a Hobbico brand.

The high-visibility canopy on the Axe 100 CP is attractive.



Aerobatic ability comes standard

One of the joys of being involved in this hobby is the little things that surprise you with big performance. The Heli-Max Axe 100 CP is one of those little gems that is truly remarkable in its design and flying abilities.

With a 9.5-inch length and rotor span of nearly 10 inches, the Axe 100 CP looks like an indoor-only micro heli. If you assume that, you are wrong. The triple-axis gyro stabilization (TAGS) system allows flying in confined spaces and outdoors in less-than-ideal conditions.

Inside the Box

Opening the well-packaged box (which doubles as a carrying case), it is obvious that there is little to do to get the Axe 100 CP flying—it comes completely preassembled.

Although it is available with or without the transmitter, my review version came with a surprisingly capable, six-channel radio. The included TX610 transmitter is a dual-function, 2.4 GHz helicopter and airplane radio with a

10-model memory and some basic programmability. Its LCD screen is easy to see and navigate, although it can be cryptic until you review the included manual.

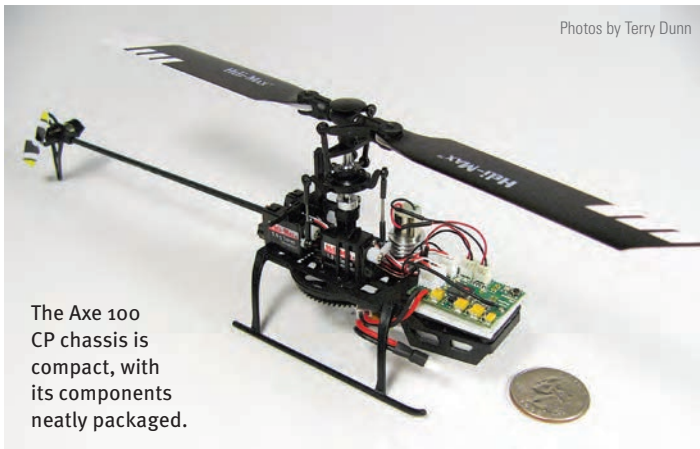
The transmitter also includes a trainer port and selectable Mode 1 and Mode 2 configurations.

Another great feature is that the radio and helicopter are compatible with the Great Planes Tactic AnyLink system.

The instructions state how to set up the Axe 100 CP for the included transmitter and for other common brands of transmitters. The TX610 transmitter comes set up from the factory, with only slight tweaking needed for personal preference.

Heli-Max included a battery charger, two 200 mAh single-cell LiPo batteries, and some spare parts. The spare parts consist of an extra set of main and tail rotor blades, and extra control rods.

The Axe 100 CP is a flybarless design, so the head mechanism is simple and clean with little slop. All functions are controlled by a single PC board that contains the receiver, gyros, and speed



The Axe 100 CP chassis is compact, with its components neatly packaged.

and elegant.

The included charger is designed specifically for single-cell Lithium batteries, but it has adjustable-charge current rates and two different styles of battery connectors. It also includes a

It has plenty of power to do standing flips, from upright to inverted hover. Forward, back, and side flips can easily be done by a moderately experienced pilot. Loops, rolls, funnels, pirouetting flips—any maneuver you can think of—can be done at a moderate level. It is not a powerhouse, but it is capable of mild 3-D.

The motor-driven tail stayed locked in position through all maneuvers including high-speed backward flying. Pirouettes have the same constant speed in right and left directions—something rarely seen with motor-driven tail rotors.

This heli is a confidence builder. You can experiment with new tricks, and if you botch them (which I did), there is little chance of breaking anything.

I've crashed the Axe 100 CP numerous

controllers in one package roughly the size of a large postage stamp. The servos are separate from the receiver board and can easily be replaced.

The main rotor power is supplied by a brushed motor with clamp-on heat sink. The battery easily, but snugly, fits into a carriage under the main frame. The engineering is well thought out

plug-in AC adapter, but not a 12-volt car adapter.

Oddly, the charger only accepts an input of approximately six volts. So if you want to charge from your car, you need a special power adapter to step down the voltage.

Using the charger is easy. Simply press the start button and wait for the charge beeps to end.



The optional six-channel 2.4 GHz computer radio admirably does the job.

AT A GLANCE ...

SPECIFICATIONS

Type:	Ultramicro flybarless helicopter
Skill level:	Intermediate to expert pilot
Rotor diameter:	9.5 inches
Flying weight:	1.6 ounces
Length:	9.5 inches
Radio:	Hobbico TX610 2.4 GHz transmitter; integrated receiver/speed controller/gyro; three Heli-Max 1.9 gram servos
Power system:	Included brushed motor
Battery:	3.7-volt, 200 mAh LiPo
Minimal flying area:	Moderately sized indoor room
Price:	\$149.97 RTF, \$99.98 without radio (Tx-R)
Flight duration:	5-7 minutes

PLUSES

- Great flying qualities.
- Extremely durable.
- Preambled and ready to fly.
- Spare parts and tools included.

MINUSES

- No automobile adapter for charging.
- Brushed motor not adequate for extreme 3-D flying.

Flying Fun

The real surprise came when I flew the Axe 100 CP. I was surprised at its smoothness and stability when spooling into my first hover. The factory setup was great and provided good handling.

Despite the modest breeze at our flying field, the Axe 100 CP had no problem maintaining a steady hover. Because it is lightweight, it tends to bounce around, but I never felt that I wasn't in control. A couple of clicks of trim and I flew nice, small circuits around the field. Switching into idle-up stunt mode is where the fun began.

Zooming up and down the field, I found that the Axe 100 CP is easy to fly in forward flight with no signs of being overly sensitive. Despite its small size, it flies similar to a larger machine. It's stable and goes where you point it. However, it can be difficult to see at a distance, so don't let it get too far away from you.

Another impressive attribute of the Axe 100 CP is its aerobatic abilities. It does not use a brushless motor, but that doesn't mean it is an anemic flier. In fact, it is quite aerobatic.

times trying to do things I'd never try on my larger machines and have yet to break anything.

Whether you are a beginner or an expert flier, the Axe 100 CP has something to offer for all abilities. It can be set up for mild flying or cranked up for confined-space, 3-D flying.

The Axe 100 CP flies well outside, even in winds you would think would be too much for its size. Add to this the fact that you are nearly guaranteed not to break anything in a crash, you have an anxiety-free, 3-D-capable heli. 🚁

—Fitz Walker

flying_fit@yahoo.com

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RTL Fasteners

“I’ve always had a fascination with airplanes,” Rich Bastone, owner of RTL Fasteners, shared with me. That interest led him to model aircraft approximately 25 years ago when he made his first flight with a Cox PT-19 CL model. His brother convinced him to try RC and he found success with a Great Planes Sturdy Birdy.

Although Rich continued to progress and move on to other aircraft, owning several RC variants in different sizes, he found that sharing his hobby with others and providing training has been the most fun and rewarding.

Drawing from his experience in building and flying models, and listening to comments of others in his club, Rich realized that there was a need for quality and affordable hardware. A discussion with his wife, Tamara, across the kitchen table, resulted in the birth of RTL Fasteners in June 2001.

They launched with a basic inventory of the most common items

a modeler needs such as hex nuts, locknuts, washers, etc. He laughed on the phone when he described the early days of having hardware throughout his house.

“We took out an ad in *Model Aviation* and began selling through mail order immediately. After two years, we had hardware in every room of the house, including the bathroom, and decided it was time for a commercial space.”

The goal from the beginning was to provide customers with quality hardware in the quantity they need. Available in various quantities, all of the fasteners are prepackaged and marked.

Rich felt that there was a demand for a bundle of common items to satisfy the modeler who might have a need in the middle of a project. The Master Builder Assortment was created to fill that gap and more products have been added as it has evolved, including the plastic parts bins that were supplied at the request of several customers.

Although many products have been added to the RTL inventory, none have been discontinued, which has necessitated moving to a larger facility. The current building is 2,500 square feet.

Company growth and ordering large volumes of hardware has positioned RTL to have some hard-to-find products, such as the M2 nylon insert locknuts, manufactured. RTL requires that all of the companies it purchases from be certified, ensuring the products are high quality.

RTL Fasteners sells its products worldwide, with Australia and Canada bringing the most business outside of the US. Several manufacturers purchase RTL materials for the hardware supplied in their ARF aircraft. Outside of the hobby, NASA and people working in robotics regularly require RTL’s parts.

“Your satisfaction is guaranteed or your money back, no questions asked.”



The RTL team: (L-R) Rich, Lisa, Crystal, Kathy, and Tamara.

The importance of customer feedback and satisfaction was mentioned several times during our call. I asked Rich what he was most proud of, and he shared the following:

"The respect that I have for my customers in terms of how I treat them and respond to them [is important]. If something is not right, I make it right. I'm proud to be able to maintain that level of service."

Rich also said that RTL is committed to keeping prices low, which has been done by absorbing many of the price increases.

I was curious whether SAE or metric hardware sold better and which products were his top sellers. As it turns out, SAE and metric sell equally well, and socket-drive, servo-mounting screws with built-in washer heads have the highest demand.

It's common for many first-time customers to call in their orders, often because they are unsure of the hardware sizes they need. The staff at RTL can help determine the proper size, composition, and quantity.

At the end of the conversation, I asked Rich if he had goals for RTL. He shared that even after 12 years it is common to find customers who hadn't known the company existed. He hopes to continue to get the word out.

Other goals include adding to the line of tools that the company carries and tracking order history online to make it easier for shoppers to reorder products they have purchased in the past.

I am impressed with the quality of the Master Builder Assortment and the Complete Metric Assortment, which I've used on several projects. The company's commitment to the customers was evident when Rich made the following statement: "I don't want to oversell someone. I never have and never will. Your satisfaction is guaranteed or your money back, no questions asked."

RTL Fasteners provides its customers the right mix of quality and quantity. So the next time you have a hardware-related question or need help, RTL is only a telephone call or email away. ✉

—Jay Smith
jays@modelaircraft.org



Win merchandise from MA and RTL Fasteners!

For an opportunity to win a Master Builder Assortment or a Complete Metric Assortment, submit your answer to the following question: *How many total pieces are in the Master Builder Assortment #5000?* You can find the answer on the company's website.

To submit your entry via email, send your answer, full name, postal address, and telephone number to MA Editor-in-Chief Jay Smith. Please include "About Us" in the subject line. To enter via postal mail, send the preceding information to MA at AMA, to Jay Smith's attention. Readers can also enter to win at www.ModelAviation.com/aboutusRTL.

Entries will be accepted through July 31, 2013. Two winners will be selected on or before August 2, 2013. One entry per person is allowed. Those that are lost, late, misdirected, garbled, or incomplete for any reason will be ineligible.

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SOURCES:

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Estes® Dart Quadcopter RTF

Length: 4.6 in.

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EASY 2 PAY ON REQUEST **\$34.99**

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Wingspan: 70 in

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EASY PAY ON REQUEST

AZ0715 ARF/BL Mtr/ ESC Combo. **3 PAY 144.99** \$434.97
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Heli-Max BLACK HAWK 200 CP 4-Blade 2.4GHz SLT Helis

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Rotor Diameter: 12.8 in.

AG1046 RTF **NEW! 3 PAY 116.66** \$349.98
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NEW!

Length: 5.7 in.



Includes: micro digital camera, 2GB memory card & card reader

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NEW!



SSL w/LEDs

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SSL features LEDs!

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Futaba 2.4GHz Computer Systems

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AG1121	10CHG 10-Channel 2.4GHz Integrated Heli Radio Mode 2.....		649.99
AG1122	14SGA 14-Channel 2.4GHz Air Computer Radio.....	3 PAY 199.99	599.97
AG1123	14SGH 14-Channel 2.4GHz Heli Computer Radio.....	3 PAY 199.99	599.97
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AG1127	R6008HS 8-Channel 2.4GHz FASST Receiver.....	3 PAY 46.66	139.98
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AG1129	CGY750 3-Axis Gyro & Governor.....	3 PAY 99.99	299.97



CGY750 3-Axis Gyro & Governor





J-3 Cub

Patrick Alexander (11203 Saywell Ave., Cleveland OH 44108; email: heartbreakone@sbcglobal.net) built this Great Planes Piper Cub.

The Cub spans 76.5 inches and has a Magnum XL 52 engine and Master Airscrew 12 x 6 K-Series propeller. The radio is a Futaba Conquest. He added nose art, naming the model after his niece, Tabitha.

Patrick wrote: "I always wanted a J-3 Cub. It flies wonderfully and is so dependable [that] it has become my everyday flier. It always gets attention at the airfield."



Fieseler Storch

Ed Holt (5707 Sierra Vista Dr., Riverbank CA 95367) built his Fieseler Storch from BP Hobbies.

The Storch is powered by a Himax 2816 brushless motor spinning a 10 x 5 propeller. The model employs a Castle Creations 25-amp ESC.

"It flies great. The flaps and moveable leading edge really slow it down," wrote Ed.



North Star

Kenneth Hollingshead (51 Bryant Dr., Albertville AL 35951; email: enor2000@msn.com) built this model from a kit by Laddie Mikulasko. The kit came with a note from Laddie stating he no longer owned the rights to the drawings.

Kenneth wrote: "This kit left a lot to the creativity of the builder, so I assembled it based on past kit- and scratch-building experiences. The North Star is powered by a Super Tigre G-51 Ring with a three-blade, 7-inch pitch propeller that fits the available space. The radio is an eight-channel Hitec with five servos.

"I installed a miniservo in the power pod to avoid using a complex routed 48-inch cable for the throttle. To ease servicing of the power pod, I made the tail feather assembly bolt on. Also, the wingtips and floats are bolted on," Kenneth wrote.



Python

Dennis Carlsen (10193 Banner Lava Cap Rd., Nevada City CA 95959; email: denniscarlson@hotmail.com) based his model on the Model 12 Pitts Python.

Dennis started with foam models to get the proportions right for the flight performance he wanted, and then built 36- and 48-inch wingspan balsa models from his own plans. He had a friend help with CAD design and had the model laser cut.

The Python has a 60-inch wingspan and is legal for Giant Scale events. Weight is 12 pounds and the model requires a 2500-watt motor. Dennis uses a Neu 1515 1.5y motor, a 20 x 11 APC E propeller and nine-cell battery packs for 2,700 watts.

There is little coupling on knife-edge. Loops, flat spins, and tumbles are all easily within the flight envelope. The Python has easy takeoffs and landings.

If anyone is interested, Dennis can have short kits made.



Focke-Wulf Fw 190D-9

Darren Gibson (6801 Burnell Dr., Eau Claire WI 54703; email: darreng8@juno.com) built his Fw 190D-9 from a Top Flite kit.

The model spans 63.5 inches and weighs 11 pounds. Power is a Super Tigre 75 engine turning a 13 x 6 propeller. The covering is MonoKote Flat Olive Drab and Flat Dove Gray. Darren's model is controlled by a Futaba FP-7UAP and Futaba servos.

Darren wrote: "When I land on the grass strip, I keep the landing gear in the up position so it does not flip over on landings. It does okay landing on its belly."



Patriot

Gale Enstad (134116 Copper Crest Dr., Bakersfield CA 93306; email: genstad@bak.rr.com) flew a friend's Great Planes Patriot and decided he wanted one.

During the build, Gale made some changes to the nose and canopy for a more jetlike appearance. He also added anhedral to the horizontal stabilizer. The tiger stripes turned out to be easy to make utilizing a dressmaker's cutting wheel.

A Hitec radio system guides it with an Aurora 9 transmitter. Power comes from an O.S. .46. Robart retracts clean it up in flight.

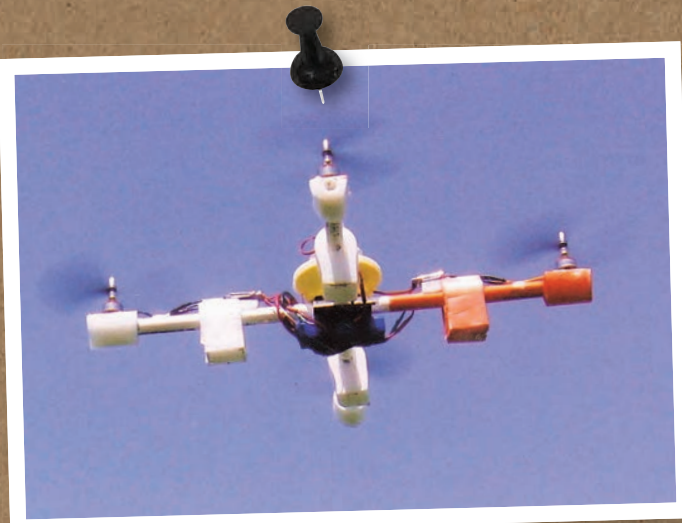


Mosquito

Rob Askegaard submitted this model on behalf of his friend, Bob Goff.

Bob (Huntington Beach, California; email: rcgoff1@yahoo.com) created this scratch-built de Havilland Mosquito from Cleveland 1/8-scale plans. The wingspan is 85 inches and it weighs approximately 12 pounds. Power is provided by two Mega 22-20 motors with Mini Demon gear reduction.

The Mosquito uses Zinger three-blade wooden propellers and Zinger spinners. Batteries are two Thunder Power three-cell, 6000 mAh LiPos. Covering is transparent UltraCote and paint. The landing gear is Robart mechanical with Dave Brown wheels.



Quadcopter

Walt "Hank" Lehner (1225 Gardenia Ln., Prescott AZ 86305; email: flyingwingmanscw@gmail.com) scratch-built this quadcopter he calls Buttercup.

The aircraft's arms are 11-inch segments of thin-wall PVC irrigation pipe. Turnigy 2228/17 outrunner motors are mounted on small plywood platforms screwed into the PVC arms. The motors spin 8-inch Gaiu quadcopter propellers.

At the heart of the quadcopter is a Hobby King V2.1 multirotor control board that is preprogrammed for "plus" configuration flight. Power is supplied by a Value Hobby 2650 mAh, three-cell LiPo battery.

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Hobbyking BAE Hawk

90mm EDF Composite
1140mm (ARF)
SKU: BAE_HAWK



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The BAE Hawk has become one of the most successful jet training aircraft ever built and is used by many Nations both as a trainer and as a combat aircraft.

Sbach 342 1400mm Balsa (ARF)

SKU: Sbach-55in_EP



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The Hobbyking Sbach 342 is a locker. The size of the control surfaces grab your attention straight away, this is built for 3D/Precision aerobatics.

Duraflly Zephyr V-70

70mm EDF V-Tail Glider
SKU: 9095000003



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Duraflly Balsa Series - Ryan

STA(M) 965mm (PNF)
SKU: 9049000006



\$143.62
USA WAREHOUSE

The Duraflly Ryan is the first of the Duraflly balsa range. It's nostalgic character and charming looks has made it a firm favourite among hobbyists the world over and of course, being balsa means it flies straight and true.

P-40N Giant Scale w/flaps & retracts

1700mm EPO Silver (ARF)
SKU: P40N-KIT-S



\$186.69
USA WAREHOUSE

Detail, detail, detail ... this stunning rendition of the famous P-40 oozes classic scale appeal with no detail spared. Features such as moulded exhaust stubs, .50 cal gun, cockpit and bomb cradle ... this beauty is one for the scale modellers.

SU-26 Sukhoi Gas 50cc 2260mm (ARF)

SKU: SU-2650CC



\$433.81
USA WAREHOUSE

This stunning model is a very capable 3D performer that impresses in every respect, once equipped with one of our impressively inexpensive 50cc engines, this will be a bird that you can practice any manoeuvre with.

Duraflly Spitfire MK24

SKU: 9142000140



\$154.99
USA WAREHOUSE

The MK24 Spitfire includes retractable, split flaps, 4 blade prop and ultra scale colour scheme. Easily the most anticipated Duraflly model ever. Fly the MK24 and you will never look at a park flyer the same way again. A truly magnificent specimen.

Turboraven 0.60 EP/Glow 1580mm (ARF)

SKU: TurboRav-60



\$145.50
USA WAREHOUSE

The Turboraven's 2pc plug-in wing is ideal for easy transportation. Rudder is pull-pull for precision and an alloy servo extension is included. Strength is a premium with the carbon wing tube and light and sturdy airframe.

DHC-2 Beaver Balsa Super Scale

1800mm (ARF)
SKU: 108000004



\$178.35
USA WAREHOUSE

This Beaver is a great size and has tons of presence both on the ground and in the air. 2pc wing and hinged doors make for practicality and ease of operation. A beautiful model of a modern classic.

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JR XG8

8-Channel 2.4GHz DMSS Transmitter w/RG831B Receiver

MODE 1 SKU: 422000005 **MODE 2** SKU: 422000006

Channels: 8
Modulation: DMSS
Band: 2.4GHz
Receiver: RG831B 8-channel full-range receiver
Model Memory: 30
Mode: Mode 1, 2, 3, 4 selectable - (mode 1 default)
Transmitter Battery: 6.4V 1400mAh Li-Fe
Programming Features: Airplane, sailplane, helicopter



\$384.99*
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OrangeRx T-SIX

2.4GHz DSM2 6Ch Programmable Transmitter w/10 Mode/ Memory

MODE 1 SKU: 9403000001 **MODE 2** SKU: 9403000002

Stick Mode: Mode 1(right stick throttle)
Frequency: 2.4GHz
Modulation: DSM2
No. of Channels: 6
Model Memory: 10
Requires:
• 2.4GHz DSM2 compatible receiver
• 4 x AA batteries or 2S transmitter battery w/JST plug



\$64.99*
INTERNATIONAL WAREHOUSE

Turnigy 9XR

Transmitter Mode (No Mode!)

MODE 1 SKU: 9171000154

MODE 2 SKU: 9171000184

Channel: 8ch ppm/9ch pcm
Display: 128*64LCD (Backlit)
Support Type: Heli/Acro/Glid
Model Memory: 16
Stick modes: 1, 2, 3, 4
Encoder type: ppm/pcm



\$49.99*
INTERNATIONAL WAREHOUSE

OrangeRx R620

Spektrum/JR DSM2 Compatible Full Range 6Ch 2.4GHz Receiver w/Failsafe

SKU: R620
The new range of OrangeRx R620 receivers are built using original components and MCUs, and with state of the art SMT automation to ensure a quality product each and every time.



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INTERNATIONAL WAREHOUSE

OrangeRx Futaba FASST

Compatible 8Ch 2.4GHz Receiver S-Spec

SKU: TFR8S
The OrangeRx 8ch is only 9.7g in weight and 30x45x10mm in size. Great for small planes, helis, parkflyers or even medium sized sport planes. These receivers can be used in pairs to create a satellite system with 14 channels.



\$31.99*
INTERNATIONAL WAREHOUSE

Quantum 2.4Ghz Telemetry System

(Volt/Amp/Temp/mAh) V3.0

SKU: Q001
The Quantum Telemetry system transmits a narrow, lightweight signal 4 times a second and uses DSSS technology to ensure no conflicts with other systems close by.



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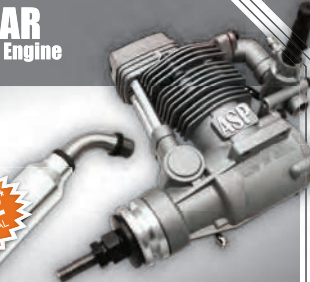


ASP FS52AR

Four Stroke Glow Engine

SKU: 129000006

Displacement: 8.56
Bore: 25.00mm
Stroke: 20.60mm
Suggested prop: 11x7
RPM: 2,500 - 11,500
Weight: 455g



\$105.82*
INTERNATIONAL WAREHOUSE

RCG 30cc

Gas engine/ CD-Ignition 3.9HP/2.94kw

SKU: RCG30cc

With the growing popularity of the 30cc class, this engine is a must have. Power and reliability in a package that won't cost the earth.



\$223.00*
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RCG 15cc

Gas engine w/ CD-Ignition 2.1HP/1.54kw

SKU: RCG15cc

With its easy starting characteristics and reliable low-maintenance running the RCG 15cc is an excellent engine. RCG engines have proven themselves the world over for quality and reliability.



\$149.40*
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Turnigy 30cc

Gas engine w/ CDI

SKU: TGG30

Unique and quality features which make this an outstanding engine are: Walbro carburettor. Easy to tune with instant throttle response and reliability.



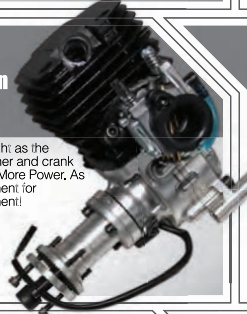
\$152.48*
USA WAREHOUSE

52cc

Gas engine w/ CD-Ignition 3.2kw+ Overbore

SKU: TGY52

The TGY52 Overbore is the same weight as the 45cc, however it has a larger piston, liner and crank case giving it more capacity and thus More Power. As the saying goes... There is no replacement for displacement!



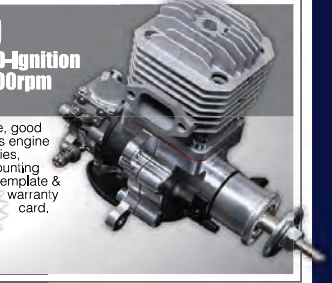
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USA WAREHOUSE

JC30 EVO

Gas engine w/CD-Ignition 30cc/4hp @ 9,000rpm

SKU: 375000002

JC30 EVO, nicely made, good quality and powerful gas engine complete with accessories.



\$185.90*
INTERNATIONAL WAREHOUSE

AP Hornet 0.15

Two Stroke Glow Engine

SKU: 129000001

Displacement: 0.15
Bore: 15.50mm
Stroke: 12.00mm
Suggested prop: 8*4
RPM: 2,500 - 18,000
Weight: 150g



\$32.81*
INTERNATIONAL WAREHOUSE

ASP S25A

Two Stroke Glow Engine

SKU: 129000002



\$41.99*
INTERNATIONAL WAREHOUSE

NGH GT9 9cc

Gas Engine With Rcxcl CDI Ignition

SKU: 406000001

This is the GT9 9cc (52cu) Gas engine from NGH. Well suited to 40-.50 glow sized models, this engine offers light weight and fantastic power output for its size - 0.8hp @ 15,000rpm.



\$127.99*
INTERNATIONAL WAREHOUSE

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3542-1185KV

SKU:SK3-3542-1185

Turns: 10T
Voltage: 3~4S Lipoly
Internal resistance: 0.024ohm
Max Loading: 49A
Max Power: 730W



\$33.05
USA WAREHOUSE

2826-1130KV SKU:SK3-2826-1130 **\$16.56**

2826-1240KV SKU:SK3-2826-1240 **\$16.56**

2836-1040KV SKU:SK3-2836-1040 **\$23.61**

4240-530KV SKU:SK3-4240-530 **\$33.58**

5055-280KV SKU:SK3-5055-280 **\$49.63**

6364-245KV SKU:SK3-6364-245 **\$71.14**

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4962-480KV

(700/90 size heli)

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Turnigy HelDrive SK3 Competition Series motors are top quality outliners designed specifically for use in today's high performance helicopter models.



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AERODRIVE BRUSHLESS OUTRUNNER MOTOR

2830-1130KV

SKU:SK3-2830-1130

Turns: 18T
Voltage: 2-3S Lipoly
Internal resistance: 0.095ohm
Max Loading: 20A
Max Power: 187W



\$18.84
USA WAREHOUSE

4250-350KV

SKU:SK3-4250-350

Turns: 14T
Voltage: 4-5S Lipoly
Internal resistance: 0.033ohm
Max Loading: 53A
Max Power: 1190W



\$36.71
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28-36 1800KV /438W

SKU:NTM2836-1800



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28-26 1200KV / 250W SKU:NTM2826-1200 **\$15.19**

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35-42 1000KV / 700W SKU:NTM3542-1000 **\$15.90**

35-42 1250KV / 600W SKU:NTM3542-1250 **\$17.17**

42-48 650KV / 1295W

SKU:NTM4248-650



\$30.07
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35-48 900KV / 815W SKU:NTM3548-900 **\$21.59**

42-58 500KV / 1300W SKU:NTM4258-500 **\$36.66**

50-60 270KV / 2400W SKU:NTM5060-270 **\$45.44**

50-60 380KV / 2665W SKU:NTM5060-380 **\$45.44**

EASYMATCH

G10 810kv (.10 Glow) SKU:G10-810 **\$26.38**

G15 710kv (.15 Glow) SKU:G15-710 **\$28.93**

G25 710KV

SKU:G25-710

No load current: 11.1V/1.6A
Max current: 44A
Internal resistance: 0.045 ohm



\$26.75
USA WAREHOUSE

G32 530KV (.32 Glow)

SKU:G32-530

Max current: 60A
No load current: 11V/1.1A
Internal resistance: 0.039 ohm



\$27.99
USA WAREHOUSE

G32 770KV (.32 Glow) SKU:G46-420 **\$31.60**

G46 420KV (.46 Glow) SKU:G32-770 **\$49.35**

G46 550KV (.46 Glow) SKU:G46-550 **\$47.32**

G60 300KV (.60Glow)

SKU:G60-300

No load current: 11V/1.2A
Max current: 60A
Internal resistance: 0.04 ohm



\$53.68
USA WAREHOUSE

G60 400KV (.60 Glow) SKU:G60-400 **\$54.02**

G60 500KV (.60 Glow) SKU:G60-500 **\$52.31**

G110 295KV (1.10 Glow) SKU:G110-295 **\$71.37**

G160 290KV (1.60 Glow) SKU:D6364-290 50 **\$73.31**

www.hobbyking.com or 1-800-607-5803



40A SBEC w/Data Logging Brushless Speed Controller

SKU:TGY_DEL40A

Max Cont. Current: 40A
Max Burst Current: 50A
Max BEC Current: 3A
BEC Voltage: 5.5v
LiPo: 2-6S
NiMH: 3-16 cells
Weight: 54 grams



\$21.45
USA WAREHOUSE

55A SBEC w/Data Logging Brushless Speed Controller

SKU:TGY_DEL55A

Max Cont. Current: 55A
Max Burst Current: 67A
Max BEC Current: 3A
BEC Voltage: 5.5v
LiPo: 2-6S
NiMH: 5-16cells
Weight: 81grams



\$24.44
USA WAREHOUSE

100A SBEC w/Data Logging Brushless Speed Controller

SKU:TGY_DEL100A

Max Cont. Current: 100A
Max Burst Current: 120A
Max BEC Current: 3A
BEC Voltage: 5.5v
LiPo: 2-6S
NiMH: 5-16cells
Weight: 96grams



\$36.75
USA WAREHOUSE

30A SBEC (2s~4s) SKU:9192000027 **\$18.07**

40A SBEC SKU:TGY_DEL40A **\$21.45**

70A SBEC SKU:TGY_DEL70A **\$29.91**

160A HV (OPTO) Brushless Speed Controller

SKU:TGY_DEL160HV

Max Cont Current: 160A
Max Burst Current: 180A
BEC: N/A
LiPo: 6-12S
NiMH: 16-36cells
Weight: 157grams



\$23.47
USA WAREHOUSE

YEP

45A (2~6S) SBEC BRUSHLESS SPEED CONTROLLER

SKU:351000016

Max Cont Current: 45A
Max Burst Current: 55A for 10 seconds
Input Voltage: 2-6 cells Li-XX or 6-16 Ni-MH/Ni-Cd battery
BEC: 5.5V/6A Switching BEC



\$25.99
INTERNATIONAL WAREHOUSE

60A (2~6S) SBEC SKU:9351000010 **\$27.99***

80A (2~6S) SBEC SKU:9351000017 **\$42.70***

100A (2~6S) SBEC SKU:9355000018 **\$49.99***

150A (2~6S) SBEC SKU:9351000011 **\$54.99***

120A HV (4~14S) (OPTO) BRUSHLESS SPEED CONTROLLER

SKU:9355000019

Max Cont Current: 120A
Max Burst Current: 140A for 10 seconds
Input Voltage: 4-14 cells Li-XX or 12-42 Ni-MH/Ni-Cd battery
BEC: None (OPTO)



\$118.16
INTERNATIONAL WAREHOUSE

PLUSH

Plush ESCs have proven themselves the world over. With their precision MOSFETS, easy programming and inexpensive price, they have firmed themselves as a force to be reckoned with. Try one...you'll love 'em.

10amp 99gram Brushless Speed Controller

SKU:TR_P10A

Cont Current: 10A
Burst Current: 12A
BEC Mode: Linear
BEC: 5v / 2A
Lipo Cells: 2-4
NiMH: 5-12
Weight: 9g
Size: 27x17x6mm



\$9.42
USA WAREHOUSE

12amp (2A BEC) Brushless Speed Controller

SKU:TR_P12A-E

Cont Current: 12A
Burst Current: 15A
BEC Mode: Linear
BEC: 5v / 2A



\$24.44
USA WAREHOUSE

6A / 8bec/6g SKU:TR-6A **\$8.20**

18amp SKU:TR_P18A **\$12.15**

60amp SKU:TR_P60A **\$34.87**

80A w/ UBEC SKU:TR_P80A **\$40.28**

HobbyKing SS

40-50A Speed Controller

SKU:HK-SS50A

Weight: 39g
Cells: 2-4S
Max Current: 40A
Timing: 1/7/15/30 programmable



\$11.57
USA WAREHOUSE

50-60A SKU:HK-SS60A **\$14.17**

90-100A SKU:HK-SS100A **\$25.09**

190-200A SKU:HK-SS200ALV **\$30.24**

18-20A SKU:HK-SS20A-HW **\$7.93**

* only available in international warehouse

**GENUINE
TURNIGY**



2200 mAh	3S 20C	SKU:T2200.3S.20	\$9.99
	3S 40C	SKU:T2200.3S.40	\$17.77
	6S 30C	SKU:T2200.6S.30	\$32.77

2650 mAh	4S 30C	SKU:T2650.4S.30	\$27.58
	4S 40C	SKU:T2650.4S.40	\$31.67
	6S 20C	SKU:T2650.6S.20	\$22.11



3000mAh 6S 20C
GREAT FOR T-REX 500 AND HK-1500!
\$29.99 (USA Wholesale)

3000 mAh	4S 20C	SKU:T3000.4S.20	\$20.66
	4S 30C	SKU:T3000.4S.30	\$30.12

3300 mAh	3S 20C	SKU:T3300.3S.20	\$22.88
	6S 30C	SKU:T3300.6S.30	\$47.99

3600 mAh	3S 30C	SKU:T3600.3S.30	\$26.52
	4S 20C	SKU:T3600.4S.20	\$36.92
	4S 30C	SKU:T3600.4S.30	\$23.79
	6S 30C	SKU:T3600.6S.30	\$54.47

4000 mAh	3S 20C	SKU:T4000.3S.20	\$23.79
	4S 40C	SKU:T4000.4S.40	\$43.88
	6S 20C	SKU:T4000.6S.20	\$42.25

5000 mAh	4S 20C	SKU:T5000.4S.20	\$35.04
	4S 30C	SKU:T5000.4S.30	\$48.61
	6S 25C	SKU:T5000.6S.25	\$59.95

2200 mAh	3S1P 25C	SKU:Z22003S-25	\$11.28
	4S1P 30C	SKU:Z22004S-30	\$19.22
	6S1P 45C	SKU:Z22006S-45C	\$22.99

2650 mAh	3S1P 30C	SKU:Z26503S-30	\$21.58
	3S1P 40C	SKU:Z26503S-40	\$20.58
	4S1P 30C	SKU:Z26504S-30	\$28.98

2800 mAh	4S1P 20C	SKU:Z28004S-20	\$26.12
	6S1P 30C	SKU:Z28006S-30	\$36.85

3000 mAh	3S1P 40C	SKU:Z30003S-40	\$21.07
	6S1P 20C	SKU:Z30006S-20	\$25.58

4000 mAh	3S1P 40C	SKU:Z40003S-40	\$27.40
	4S1P 20C	SKU:Z40004S-20	\$28.39
	4S1P 40C	SKU:Z40004S-40	\$36.24
	6S1P 40C	SKU:Z40006S-40	\$46.95



4000mAh 3S1P 20C
HARDCASE PACK
\$27.61 (USA Wholesale)

4400 mAh	4S1P 15C	SKU:Z44004S15C	\$27.99
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4500 mAh	4S1P 45C	SKU:Z45004S-45C	\$47.42
	6S1P 30C	SKU:Z45006S-30	\$61.32

5000 mAh	3S1P 20C	SKU:Z50003S-20	\$22.07
	4S1P 20C	SKU:Z50004S-20	\$26.99
	4S1P 30C	SKU:Z50004S-30	\$34.79
	4S1P 40C	SKU:Z50004S-40	\$52.99



SKU: ZC.2200.3S.25 **2200mAh 3S 25C**

1300 mAh	4S 25C	SKU:ZC.1300.4S.25	\$12.24
	4S 35C	SKU:ZC.1300.4S.35	\$17.41

2700 mAh	4S 35C	SKU:ZC.2700.4S.35	\$25.04
	6S 35C	SKU:ZC.2700.6S.35	\$37.18

3300 mAh	4S 35C	SKU:ZC.3300.4S.35	\$37.23
	6S 35C	SKU:ZC.3300.6S.35	\$45.32

3700 mAh	4S 25C	SKU:ZC.3700.4S.25	\$31.62
	6S 25C	SKU:ZC.3700.6S.25	\$47.16
	6S 35C	SKU:ZC.3700.6S.35	\$58.18

4000 mAh	4S 25C	SKU:ZC.4000.4S.25	\$35.70
	6S 25C	SKU:ZC.4000.6S.25	\$53.38

4500 mAh	4S 35C	SKU:ZC.4500.4S.35	\$38.58
	6S 35C	SKU:ZC.4500.6S.35	\$71.31

5000 mAh	4S 25C	SKU:ZC.5000.4S.25	\$38.88
	8S 25C	SKU:ZC.5000.8S.25	\$89.22

USA Battery Shipping
from as low as **\$2.99**



Shop Online or By Phone

Place orders online or by phone by using stock numbers from Ad!



350 mAh	1S 65~130	SKU:N350.1S.65	\$4.47 (USA Wholesale)
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2200 mAh	6S 25~50C	SKU:N2200.6S.25	\$26.29
	3S 25~50C	SKU:N2200.3S.25	\$17.99
	4S 25~50C	SKU:N2200.4S.25	\$19.01
	3S 35~70C	SKU:N2200.3S.35	\$18.99
	4S 35~70C	SKU:N2200.4S.35	\$22.36
	3S 45~90C	SKU:N2200.3S.45	\$19.99

2700 mAh	4S 65~130C	SKU:N2700.4S.65	\$42.52
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3300 mAh	4S 25~50C	SKU:N3300.4S.25	\$28.29
	4S 35~70C	SKU:N3300.4S.35	\$33.78
	4S 65~130C	SKU:N3300.4S.65	\$51.94
	6S 25~50C	SKU:N3300.6S.25	\$42.49
	6S 35~70C	SKU:N3300.6S.35	\$55.28
	6S 45~90C	SKU:N3300.6S.45	\$64.43

4000 mAh	2S 25~50C	SKU:N4000.2S.25	\$17.19
	3S 25~50C	SKU:N4000.3S.25	\$25.76
	4S 25~50C	SKU:N4000.4S.25	\$34.32
	4S 35~70C	SKU:N4000.4S.35	\$44.46
	4S 45~90C	SKU:N4000.4S.45	\$48.06
	6S 35~70C	SKU:N4000.6S.35	\$69.23



4200mAh 2S2P 40~80C
HARDCASE PACK
\$28.66 (USA Wholesale)

4500 mAh	2S 25~50C	SKU:N4500.2S.25	\$19.32
	3S 25~50C	SKU:N4500.3S.25	\$28.96
	3S 35~70C	SKU:N4500.3S.35	\$37.54
	4S 25~50C	SKU:N4500.4S.25	\$38.58
	4S 35~70C	SKU:N4500.4S.35	\$50.02
	4S 45~90C	SKU:N4500.4S.45	\$59.79

5000 mAh	2S 25~50C	SKU:N5000.2S.25	\$21.48
	2S 35~70C	SKU:N5000.2S.35	\$27.85
	3S 25~50C	SKU:N5000.3S.25	\$32.19
	3S 35~70C	SKU:N5000.3S.35	\$41.73
	4S 25~50C	SKU:N5000.4S.25	\$42.87
	5S 25~50C	SKU:N5000.5S.25	\$58.05
	6S 25~70C	SKU:N5000.6S.25	\$69.64
	4S 35~70C	SKU:N5000.4S.35	\$55.61
	4S 45~90C	SKU:N5000.4S.45	\$60.02

6000 mAh	2S 25~50C	SKU:N6000.2S.25	\$30.04
	3S 25~50C	SKU:N6000.3S.25	\$38.59
	4S 25~50C	SKU:N6000.4S.25	\$51.47
	6S 25~50C	SKU:N6000.6S.25	\$77.08

RECEIVER PACK

2000 mAh	2S1P 20~40C	SKU:9210000043	\$11.88
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3000 mAh	2S2P 20~40C	SKU:9210000044	\$17.81
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TRANSMITTER PACK

2100 mAh	2S1P 20C LiFePo4(Futaba T14SG)	SKU:9210000039	\$14.39
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2500 mAh	3S1P 5~10C (L)95x(H)30x(W)24mm	SKU:9210000036	\$16.59
	3S1P 5~10C (L)106x(H)50x(W)14mm	SKU:9210000037	\$16.62

2650 mAh	3S 1C LLF TX PACK (FUTABA/JR)	SKU:T2650.3S.1C	\$13.30 (USA Wholesale)
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More Sizes!
Available Online!



2200 mAh	3S 65~130C	SKU:9210000071	\$29.80
	3S 65~130C	SKU:9210000072	\$39.72
	5S 65~130C	SKU:9210000073	\$49.60

5000 mAh	6S 65~130C	SKU:9210000061	\$132.76
	7S 65~130C	SKU:9210000062	\$156.51
	10S 65~130C	SKU:9210000063	\$223.70

4 MINUTE KWIK-SET EPOXY STEEL

HobbyKing 4min Epoxy Steel Glue

SKU:HE-3
Excellent for repairing engine mounts, fills gaps & bonds almost all surfaces including hard to bond alloy. Can be drilled and used as a structural component when dry. At 59c it's a must have for any flight box.



\$0.59
INTERNATIONAL PRICES

HobbyKing 4-6min Epoxy Glue

SKU:HE-28-1
A very high quality clear setting epoxy glue. Excellent gap filling and bonding properties on almost all surfaces including delicate foam and hard to bond alloy.

\$0.89
INTERNATIONAL PRICES

Insta-Set CA Accelerator 2. oz \$4.79
SKU:HK-151

Slow-Cure 30 Min Epoxy Glue 4.5 oz \$7.99
SKU:HK-205

Un-Cure CA Debonder 1. oz \$3.19
SKU:HK-181

Slow-Cure 30 Min Epoxy Glue 9. oz \$12.79
SKU:HK-206

Polyester Hook & Loop Velcro V-STRONG (1mtr) \$1.64
SKU:Hook-Loop

Finish-Cure 20 Min Epoxy Glue 4.5 oz \$9.59
SKU:HK-209

Insta-Set CA Accelerator 8. oz \$9.59
SKU:HK-152

Mid-Cure 15 Min Epoxy Glue 9. oz \$12.79
SKU:HK-204

Maxi-Cure Extra Thick Pocket CA Glue 3/4 oz \$3.99
SKU:HK-135

Insta-Flex Flexible Thin CA Glue 1. oz \$7.99
SKU:HK-119

Insta-Cure Plus Gap Filling CA Glue 2. oz \$7.99
SKU:HK-108

Insta-Cure Super Thin CA Glue 2. oz \$7.99
SKU:HK-103

Insta-Flex Plus Clear Rubber CA Glue 1. oz \$7.19
SKU:HK-120

Quick-Cure 5 Min Epoxy Glue 4.5 oz \$6.39
SKU:HK-201

Maxi-Cure Extra Thick CA Glue 1/2 oz \$3.19
SKU:HK-111

Maxi-Cure Extra Thick CA Glue 1. oz \$4.79
SKU:HK-112

Insta-Cure Plus Gap Filling CA Glue 1. oz \$4.79
SKU:HK-107

Insta-Cure IC-Gel .7 oz \$5.59
SKU:HK-116

Insta-Cure Plus Gap Filling Pocket CA Glue 3/4 oz \$3.99
SKU:HK-133

Insta-Cure Super Thin CA Glue 1. oz \$4.79
SKU:HK-102

Insta-Cure Super Thin CA Glue 1/2 oz \$3.19
SKU:HK-101

Insta-Cure Super Thin CA Glue 3/4 oz \$3.99
SKU:HK-131

Mid-Cure 15 Min Epoxy Glue 9. oz

SKU:HK-204
MID-CURE 15 min. This epoxy is used over larger areas especially when more working time is needed. Great for firewalls, landing gear and wings.

\$12.79
USA WAREHOUSE

Maxi-Cure Extra Thick CA Glue 2. oz

SKU:HK-113
MAXI-CURE is the best choice for plastic model assembly. When used with INSTA-SET, it works better than any putty for modifying or filling voids.

\$7.69
USA WAREHOUSE

Thread Locker & Sealant

HK-173 Permanent (Red) \$4.79
SKU:HK-173

HK-171 Medium Strength (Blue) \$4.79
SKU:HK-171



Super Gold Plus Odorless

CA Glue 1/2 oz (Foam Safe) \$7.19
SKU:HK-126

CA Glue 1. oz (Foam Safe) \$12.79
SKU:HK-127

CA Glue 2. oz (Foam Safe) \$23.99
SKU:HK-128

CA Glue 3/4 oz (Foam Safe) \$9.99
SKU:HK-139

Super Gold Thin Odorless

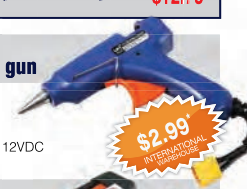
CA Glue 2. oz (Foam Safe) \$23.99
SKU:HK-123

CA Glue 1/2 oz \$7.19
SKU:HK-121

CA Glue 1. oz (Foam Safe) \$12.79
SKU:HK-122

Battery Powered Hot Melt Glue gun

SKU:376000001
Power: 10W
Power Plug: XT60
Operating Voltage: 12VDC



\$2.99
INTERNATIONAL PRICES

Hot Melt Glue gun

SKU:OR-GlueGun
20W
110 to 240v capable.



\$5.95
INTERNATIONAL PRICES

Ex-Long CA Ex-Tips (1pc)

SKU:HK-303

\$0.23
USA WAREHOUSE

CA Replacement Tops (1pc)

SKU:HK-312

CA Applicator Reg (1pc)

SKU:HK-321

CA Applicator Fine (1pc)

SKU:HK-322

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3D MASTERS WE GOT THIS.

105

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2012 3D MASTERS
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HobbyKing is proud to announce that we are now official stockists of KDS helis. These pro-spec helis compliment our stable of hardcore heli products which include A-spec batteries, SK3 motors, RJX blades and Turnigy power systems. From now on if you're into 3D.....HobbyKing has got you covered.



700 size
SKU:104000111

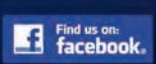
\$469.99
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600 size
SKU:104000075

\$419.99
INTERNATIONAL PRICES

550 size
SKU:104000002

\$359.99
INTERNATIONAL PRICES





\$46.02
USA WAREHOUSE

**Turnigy Accucel-8
150W 7A Balancer/Charger**

SKU: Accucel8150
Operating voltage range: 11.0-18.0Volt
Charge current range: 0.1-7.0A
Discharge current range: 0.1-5.0A
NiCd/NiMH battery cell count: 1-27 cells
Lithium battery cell count: 1-8 Series
Pb battery voltage: 2 to 36V
Weight: 625g Dimensions: 170X125X35mm



\$89.99*
INTERNATIONAL WAREHOUSE

**Turnigy Mega
300W 8S Balance Charger /Discharger (150W x 2)**

SKU: 9052000035
Features:
• Dual power output 150Wx2 (300W total)
• Supports Li-XX, Ni-XX and Pb batteries
• Store up to 10 battery settings
• Large cooling holes on the top edge of the case
• Dual temperature controlled cooling fans
• Wide input voltage range (11-18VDC)



\$71.73
USA WAREHOUSE

**TURNIGY Mega
400W V2 Lithium Polymer Battery Charger V2**

SKU: T400W-V2
Features:
• Microprocessor controlled
• Delta-peak sensitivity (NiMH/NiCd)
• Individual cell balancing charge & discharge
• Li-ion, LiPo and LiFe capable
• Ni-Cd and NiMH capable
• High-power and high-performance circuit



\$121.99
USA WAREHOUSE

**Turnigy
4x6S 400W Lithium Polymer Battery Charger**

SKU: 9052000009
Operating voltage range: DC11.0-18.0V
Discharger power: 32W
Charge current range: 0.1A-10A
Discharge current range: 0.1A-5A
Weight: 1100g Cell count: 1-15 NiCd/NiMH cells
Dimensions: 190x153x60mm
1-10 Lead-Acid cells (2V-20V) 1-6 LiPo/Liion/LiFe cells



\$67.08
USA WAREHOUSE

**HobbyKing
540W 100~120V
Power Supply (13.8V-18V - 30amp)**

SKU: T-30PS-110
Input Voltage: 100-120V AC
Output Voltage: 13.8V-18V DC (Adjustable)
Output Amps: 30A Dimensions: 208 x 139 x 59.5mm
Output Watts: 540W Weight: 1.48kg
Temperature Cutoff: <100deg C
Cooling: Dual Fan



\$129.35*
INTERNATIONAL WAREHOUSE

**Turnigy
1080W 220~240V
Power Supply (13.8V-18V - 60amp)**

SKU: 9052000002
Input Voltage: 220-240V AC
Output Voltage: 13.8V-18V DC (adjustable)
Output Amps: 60A
Output Watts: 1080W
Temperature Cutoff: <100deg C
Cooling: Dual Fan Weight: 2.388kg
Dimensions: 258 x 138 x 73mm (case size)



\$69.99
USA WAREHOUSE

**HobbyKing
600W / 17V Power Supply**

SKU: HK600W
Input Voltage: 100-230V
Output Power: 600W
Output Voltage: 17V
Output Current: 0-36A
Connector: 4mm Socket (Removable for alligator clips)
Dimensions: W225mm x H108mm x D186
Weight: 1968g



\$24.07
USA WAREHOUSE

**Turnigy Accucel-6
50W 6A Balancer/Charger w/
accessories**

SKU: ACC6
Input Voltage: 11-17V
Circuit power: Max Charge: 50W / Max Discharge: 5W
Charge Current Range: 1-6.0A
Ni-MH/NiCd cells: 1-15
Li-ion/Polyc cells: 1-6
Pb battery voltage: 2-20V
Weight: 355g

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HobbyKing Mi Digital Servo

The HK Mi Series servos represent the next break through in high precision servo technology. Using Magnetic Induction, rather than a potentiometer, for an unsurpassed level of accuracy and performance.

High Torque Metal Gear Servo

JR/Hitec 10kg / 0.10 / 52g
SKU: HK47003DMG



\$27.36
USA WAREHOUSE

Voltage: 4.8V / 6V
Speed: 0.12sec/60deg (4.8V)
- 0.10sec/60deg (6V)
Torque: 8.0kg.cm (4.8V) - 10kg.cm (6V)
Size: 40.2mm x 20.1mm x 39.2mm
Weight: 52g
Gear Train: Full Ti-Al alloy gears Gears

High Speed MG Servo
3.0kg / 0.08sec / 26g
SKU: HK28012DMG **\$23.30**

High Torque MG Servo
6.0kg / 0.11sec / 26g
SKU: HK28013DMG **\$23.15***

High Speed Metal Gear Servo
JR/Hitec 5.1kg / 0.04 / 58g
SKU: HK47010DMG **\$28.68***

High Torque Metal Gear Servo
JR/Hitec 11.8kg / 0.07 / 58g
SKU: HK47011DMG **\$28.68***

High Speed Metal Gear Servo
JR/Hitec 5.6kg / 0.04 / 61g
SKU: HK47110DMG **\$31.08***

High Torque Metal Gear Servo
JR/Hitec 11.8kg / 0.07 / 61g
SKU: HK47111DMG **\$31.08***

High Speed Metal Gear Servo
JR/Hitec 5kg / 0.06 / 52g
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7.5kg / 0.12sec / 48g
SKU: HK47004DTS **\$28.44***

High Torque - High Voltage Servo
0.18 / 9kg / 48g
SKU: HK47005DTS **\$26.94***

High Voltage Metal Gear Servo
8.40kg / 0.03 / 61g
SKU: HK47902TM-HV **\$36.53***

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15.2kg / 0.10 / 60g
SKU: HK47291TM-HV **\$39.65***

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TGY-A55H Alloy Case Digital Slim Wing Servo (Metal Gear)

8.6kg / .12sec / 28g
SKU: TGY-A55H

Weight: 28.4g +/- 1g
Dimensions: 30.00 x 10.00 x 34.50mm
Torque At 4.8V: 7.0kg/cm
Torque At 6.0V: 8.6kg/cm



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Metal Gear Servo
60g/15.5kg/.16sec
SKU: TGY-1501MG **\$11.87**

TG9e
9g / 1.5kg / 0.10sec
SKU: TGY9e **\$2.29**

MG90S Metal Gear Servo
1.8kg / 13.4g / 0.10sec
SKU: MG90S **\$5.09**

MG930 Digital Metal Gear Servo
3.6kg / 26g / 0.14sec
SKU: TGY-MG930 **\$14.56**

3317B Servo
19g / 2.5kg / .14sec
SKU: TGY-S3317B **\$5.86**

1259TG Digital Titanium Gear Servo
57g/16kg/.14sec
SKU: TGY-1259TG **\$34.37**

555MG Slim Wing Servo (Metal Gear)
4.2kg / .15sec / 23g
SKU: BMS-555MG **\$20.37**

1256TG Digital Titanium Gear Servo
57g/8.5kg/.08sec
SKU: TGY-1256TG **\$31.94**

1800A Servo
8g/1.5kg/.10sec (3-PACK)
SKU: TGY-1800A-3p **\$9.43**

1258TG Digital Titanium Gear Servo
57g/13.5kg/.10sec
SKU: TGY-1258TG **\$33.52**

1440A Servo
4.4g/0.8kg/.10sec (V2)
SKU: TGY-1440A **\$3.55**

380MG Micro Servo (Metal Gear)
3.6kg / .15sec / 15.6g
SKU: BMS-380MG **\$11.94**

380MAX Micro Servo (Metal Gear)
4.1kg / .16sec / 17.4g
SKU: BMS-380MAX **\$14.56**

Turnigy Servo
5.5g/0.9kg/.10sec
SKU: TGY-1550A **\$3.63**

S3317M Servo
26g / 3.0kg / .14sec
SKU: TGY-S3317M **\$7.33**

TGY-9025MG Metal Gear Servo
1.8kg/11g/0.09
SKU: TGY-9025MG **\$4.94**

hexTronik

HXT900 Micro Servo
9g / 1.6kg / .12sec

SKU: HXT900

Voltage: 3v ~ 6v
Weight: 11g / 0.39oz
Speed: 0.12 sec/60(4.8V)
Torque: 2.5 kg.cm
Size: 21x12x22 mm
/ 0.74x0.42x0.78 in



\$2.99
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HXT500 Micro Servo
5g / .81g / .10sec
SKU: HXT500 **\$3.45**

10kg Servo (metal gear)
55g / 10kg / .16sec
SKU: HXT12K **\$8.84**

HXT Twin bearing servo
6.9kg / 39.2g / .16sec
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Metal Gear Servo
60g/12.2kg/.16sec

SKU: HD-1201MG

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Torque: 12.2-13.2kg/cm
Weight: 60g
Size: 40.7x20.5x39.5mm



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National Model Aviation Day

August 17, 2013



Photos by Pat McKamara, Jerry Smith, Jay Smith, Greg Gimlick, Jennifer Orebaugh, AMA Staff

Making Modeling Memories



To celebrate the storied history of model aviation, clubs across the country are invited to participate in National Model Aviation Day on August 17, 2013. This nationwide celebration of model aviation has been established to celebrate and promote the hobby and to support a great cause. This year, the AMA and all participating clubs are asked to help raise money for the Wounded Warrior Project. This inaugural event will be the celebration of a hobby we love, and a great opportunity to introduce model aviation to your friends, family, and community members.

Register your club today!

www.nationalmodelaviationday.org

Even experienced modelers can be bitten by propellers

Dave Arthur is a great guy. After you read his story, I bet you'll agree.

Dave was in a hobby shop, getting his electric sport airplane repaired. The model had minor damage, but not as much as Dave's bandaged hand.

My friend, Tony, was behind the counter, and there was a twinkle in his eye as he introduced us. Dave explained his mishap.

He had been working on the airplane when his transmitter stick got bumped, and the throttle went to full. The propeller instantly bit into Dave's hand. He said it was more than one slice. The blades continued to spin and cut him. It took 15 stitches to close it. He was forgiving of the airplane—more than I would have been—and posed with it for the picture you see.

I was clear about what I intended to do with the photo and information. Dave laughed, not knowing until that moment that he had been confessing to the *Model Aviation* "Safety Comes First" columnist, but he cheerfully agreed to let me retell his tale.

He felt that because the incident was so awful, the only possible silver lining would be if people could read about the situation and think twice before getting into the same jam.

Dave is not an inexperienced kid. He is a careful modeler who knows well—especially now—what damage an RC electric power system can do. But even with his maturity and sound judgment, Dave had a brief moment of inattention and paid the price.

The modelers in the shop discussed the accident and what might have prevented it. Some pilots carefully place the radio out of the way, or they wrap rubber bands around the throttle stick or use other mechanical gimmicks.

Others prefer an arming switch, which allows signals to reach the controls but not the motor during pit work.



Don't be fooled! That model may look innocent, but it is the reason Dave Arthur has a bandaged hand.

There is also a danger for gas pilots who switch to electrics. We are accustomed to the engine being safe when it's not running and take for granted that it won't start up until we start it. We all know differently about electrics, but in our subconscious, that old complacency cannot wait for the right moment to bite us.

Dave's foam model is a midsize sport aircraft, but it caused plenty of damage. When we work with even bigger models, we must remember to be cautious. The risk gets greater, along with the horsepower.

Ray Must Be Psychic

Ray Teliczan sent me this funny/awful photo of a model with a saw blade in time to go with the previous story. Ray's photo might be proof that some modelers have too much time on their hands, but his picture might also help someone remember what can happen when fingers and propellers meet.

Things That Spin

Bob Mandeville emailed me about a television show he saw. It appears that in special circumstances, it might be

possible to create an explosion hazard with our shop grinders.

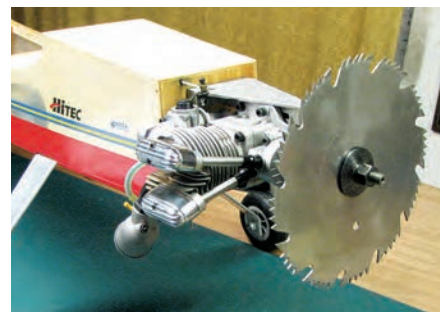
Bob said that "under certain circumstances, grinding aluminum and then grinding carbon steel can produce a crude form of thermite that might spoil your whole day by making the wheel explode."

He added that "everyone knows not to grind aluminum in the first place." Well, I didn't, but we agreed that only a far-fetched set of circumstances could lead to this danger.

Thermite is the pyrotechnic combination of metal powder fuel and metal oxide. An explosive situation would involve aluminum dust, the right amount of rust on the steel, and a great deal of bad luck, but apparently it could happen. We agreed that thermite formation is a small worry, but grinding metal always requires caution.

As for grinding aluminum, a bit of aluminum tubing or sheeting and a cutoff wheel on my Dremel is a far cry from a big piece of metal and a bench grinder. The concern is that aluminum could melt and load up the wheel and set up a vibration that could possibly shatter it.

Nothing that might go on one of my Peanut Scale models requires that much metal, so I guess I'm off the (big aluminum) hook.



Think of this picture the next time you reach around the propeller to adjust a running engine. Ray Teliczan sent this funny, but scary, reminder.

SAFETY COMES FIRST

Email such as the one Bob wrote is the best kind—filled with experience and contrasting viewpoints. Please consider sending me your new or old close-call stories or suggestions, or any hot information you might have about modeling hazards. Wisdom from real modelers is the best way to learn about our hobby.

My Turn to Confess

There was an incident last week. I instigated it. Of course, I'm wracked with guilt! I broke every safety rule in the book, and in front of a bunch of



Dave gave a model demonstration then told the kids to attempt to hit him with their new gliders. Challenge accepted!

Pratt & Whitney R9 2800 1/5 scale

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Scale color anodizing:

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Engine: light Navy Grey (P&W)
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Logo: colored, original P&W

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complete ignition system w/all cables,
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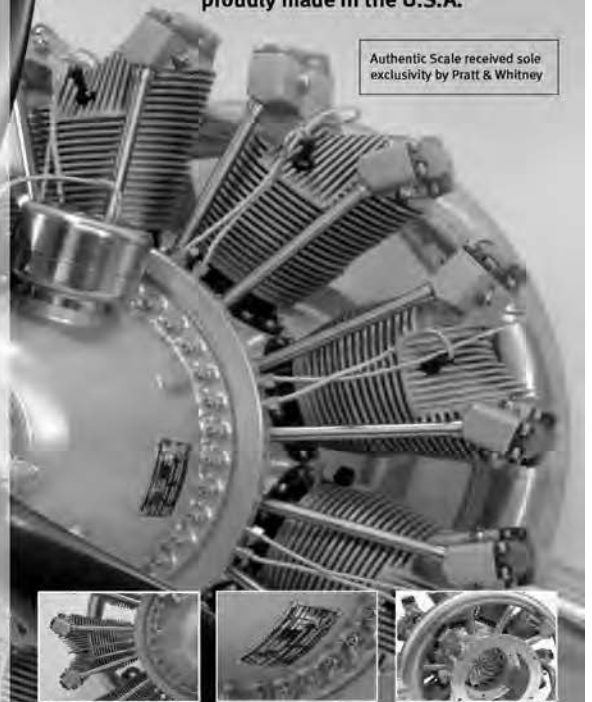
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This airplane is the last of its type still flying. Guess what it is and receive Delta Dart plans via email.

impressible kids.

My models flew close to spectators, and over the kids' heads. At the climax, there I was, daring them to hit me with their model airplanes.

Okay, I was deliberately breaking the rules with those kids, but it was in a gym and the models were indoor types—none weighing more than 18 grams. I was flying in an air show for an afterschool program.

Although I was not putting anyone in danger, it kept bothering me that I broke the safety rules, so I paid penance by having the kids use me as a target for their new hand-launched gliders.

Mystery Airplane Time!

The last one was an F-4 Phantom, and the photo was taken at the marvelous Grissom Air Museum in Peru, Indiana. Guess this month's airplane and win a prize.



The picture was taken from inside of the airplane, but all of you aviation fans should recognize that unique cockpit.

Email your guess to me and you'll win special "Safety Comes First" commemorative Delta Dart plans. Print them out and build one if you're into irreverently decorated FF models.

Stumped? Simply ask and you'll get the plans anyway. Email only please. There are no printed copies. ✉

SOURCES:

Grissom Air Museum
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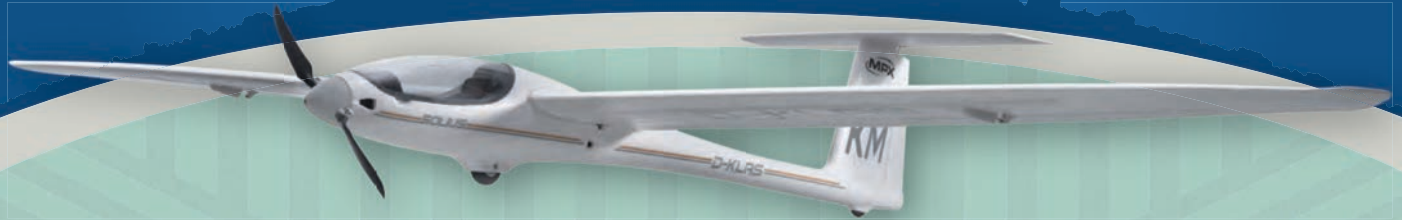
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MULTIPLEX HAS YOUR BASES COVERED!

RCGroups.com's 2013 Electric Tournament of Champions

All photos courtesy of RCGroups.com

Remember the first year of the Electric Tournament of Champions (ETOC). It was held in a gymnasium with low ceilings and few seats. There was a line around the building composed of excited RC spectators who were in town for the Toledo R/C Expo.

Most of us had to sit on the floor. If you looked around you could see fervent RC pilots mixed in with owners of RC manufacturing companies. We were all excited to see the world's top RC pilots compete with a new concept in RC flight: the indoor foamie.

That was 10 years ago and I have been to every ETOC since. The founder of this event is Tom Kroggel. This hobby is full of good pilots and Tom is one of them. He calls the ETOC the "foamie saga."

This prestigious event attracts pilots from around the world. There were no indoor competitions and few people flying indoors prior to the inaugural ETOC.

How the ETOC Works

Fourteen of the world's best pilots compete for the top seven spots for Saturday night's finals. On Friday night, there are two rounds of specific Known maneuvers and two rounds of Freestyle flown by all 14 pilots. The number of pilots is later cut to seven.

On Saturday night, the top seven pilots fly two rounds of Known and two rounds of Freestyle to determine the final three pilots. These three each fly one round of Freestyle and one round of Known to determine the



This year's winners of the RCGroups.com ETOC (L-R): Christoph Lausberg (third place), R) Gritter (first place), and Gernot Bruckmann (second place). The scores were amazingly close!

RCGroups.com ETOC champion.

The Known Sequence

Do you think you have what it takes to compete? This is a real test of a pilot's skillset. You have to keep your lines clean and do everything correctly!

This is the Known sequence routine:

1. Reversing Loop: Full roll, $\frac{3}{4}$ loop with $\frac{3}{4}$ roll integrated into $\frac{3}{4}$ loop (full roll and $\frac{3}{4}$ roll must be in opposite direction), $\frac{1}{4}$ knife-edge (KE) loop to exit on KE.

2. Hammerhead: KE entry, $\frac{1}{2}$ roll on vertical upline, no rolls on vertical downline, exit upright crossbox.

3. Double Humpty Bump: Two of four-point roll on vertical upline, $\frac{1}{2}$ inside loop, $\frac{3}{4}$ roll on downline, $\frac{1}{2}$ outside loop, two-point roll on vertical upline, exit upright.

4. $1\frac{1}{4}$ Positive Spin: (Centered) $1\frac{1}{4}$ spin, vertical downline, exit upright crossbox outbound (must exit away from the pilot).

5. Butterfly: (Centered) $\frac{1}{8}$ roll on line immediately followed by a full inside loop on a 45° plane (into wind

on Aresti), followed by a full KE loop on a 45° plane (downwind on Aresti), followed by a $\frac{1}{8}$ roll to upright.

6. Figure 9: $\frac{1}{4}$ roll on vertical upline, push $\frac{3}{4}$ outside loop, one negative snap roll on exit to inverted.

7. 180° Rolling Circle: One roll inside, one roll outside, exit inverted.

8. Torque Roll: (Centered) push to a vertical upline, perform $1\frac{1}{4}$ torque roll, opposite $1\frac{1}{4}$ Torque Roll, continue vertical upline and exit inverted. (Torque

Rolls must be centered on the vertical upline—no entry slide into Torque Roll).

9. Reversing P Loop: Pull to a vertical downline, perform a $\frac{1}{2}$ inside loop and $\frac{1}{4}$ outside loop with $1\frac{1}{2}$ continuous rolls integrated into the looping sections, exit inverted (integrated $\frac{1}{2}$ roll per quadrant of the loop).

10. Split S: $1\frac{1}{2}$ rolls, $\frac{1}{2}$ outside loop, $\frac{1}{4}$ roll, opposite $\frac{1}{2}$ roll, opposite $\frac{3}{4}$ roll, exit upright.

11. Shark's Tooth: Vertical upline with one roll, inverted 45° downline with two-point roll, exit inverted.

12. Lay Down Humpty Bump: Inverted 45° upline with $\frac{1}{4}$ roll and same direction $\frac{3}{4}$ positive snap roll, push $\frac{1}{2}$ outside loop to 45° downline, exit upright.

Freestyle

Freestyle is my favorite part of the show. It is composed by the competitor, and there are no mandatory maneuvers. This event shows how much foamie flight has advanced.

Freestyle allows a pilot's personality to show through. If I find myself



This airplane belongs to Christoph Lausberg of Germany. Christoph came in third. Note the propellers and thin foam construction.

yelling in excitement, then I know a pilot is doing a great job. I caught myself pointing at RJ Gritter's airplane because of a maneuver he was doing at ETOC. That's a first!

The Airplanes

All ETOC aircraft must be operated by battery-powered electric motors. There is a 20-ounce weight limit.

Pilots can use multiple airplanes during the competition. Airplanes 10 years ago were vastly different from the ones used today. Many are hand cut and designed by the pilots. Some aircraft have creative ways to slow them built into the designs. They are works of art.

This year's winner, RJ Gritter, flew an

airplane with twin co-axial, counter-rotating propellers and special air brake devices on the TEs. This allows the aircraft to fly slowly and consistently in any attitude.

RJ's Freestyle aircraft had variable-pitch propellers and thrust vectoring in the yaw axis. This allowed it to fly insane maneuvers such as backing up vertically from the floor to the ceiling

and hanging in the air. The weight on these airplanes is amazing. RJ's Pattern airplane weighed 3.06 ounces, and his Freestyle airplane 6 ounces.

Past ETOC Winners

Some of the best RC pilots in the world have competed in this contest. Here is a list of the previous winners:

- 2004: George Hicks
- 2005: Scott Foster
- 2006: Jason Noll
- 2007: John Glezellis
- 2008: Andrew Jesky
- 2009: Seth Arnold
- 2010-2012: Gernot Bruckmann

The E-X Games

ETOC pilots fly their model aircraft in an obstacle course which typically turns into a free-for-all! For each task that isn't completed, 10 seconds are added to the competitor's total time on the course. The lowest time wins the prize money.

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This is a great example of an ETOC airplane. The side-force generators and air brakes are noticeable. These works of art perform miracles in the air.

Some of the many obstacles are the "Table Tamer," "Octonator," "Wind Generator," "45 Vortex," "Angry Foul Poles," "Salome Gates," "Midwest Tornados," and many more.

On the following night, one pilot starts on one side of the gymnasium, while the other begins in the opposite corner. Both are allowed to follow their airplanes around the obstacles and, at times, have to share the airspace.

Each pilot finishes the event where the other pilot started by backing his or her aircraft, tail down, into a trash can. This is a one-run, one-time, winner-takes-all competition.

Lights After Dark—Open Fly

At this year's RCGroups.com ETOC there were two gymnasiums for open flying. In the back gym there was "lights out" flying both nights. There was another gym for general open flying. Everyone had a blast!

Give Autism the Boot

Each year during the Toledo Show, the RCGroups.com ETOC has a special raffle to benefit local charities.

The focus this year was on the fight against autism with our "Give Autism the Boot" campaign. There was a special raffle to benefit the Great Lakes Collaborative for Autism. Many vendors donated great items.

2013 Winners

This year's contest was as exciting as any I have attended. Gernot Bruckmann was the returning champion. After winning three years in

a row, the big question was whether he could do it again.


The contest went smoothly. The crowd loved the E-X games. It was an entertaining and fun way for the competitors to cut loose.

The scores were the closest they had been in 10 years. The amount of talent in this year's contest might have been the best, so it was incredibly exciting for the crowd.

Returning champion Gernot was leading Saturday with RJ and Christoph Lausberg close behind. One mistake could mean the championship to any of them.

Gernot had two mistakes in the final, moving him into second place. RJ flew flawlessly and it showed in his scores. It all came down to a few tenths of a point.

This year's champion, RJ, said, "If you have an interest in competition flying, jump in and try it out! ETOC was only the second contest I ever flew. I watched it live online on www.FlyingGiants.com in 2006 and knew I had to try to fly there. I practiced all year and got an invitation to compete in the 2007 ETOC."

The TnT Landing Gear crew is already gearing up for next year's competition, so be sure to mark your calendar to see the foamie saga in 2014. 

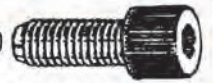
SOURCES:

TnT Landing Gear Products (ETOC event site)
<http://bit.ly/109ibkm>

RCGroups ETOC Event Coverage
www.rcgroups.com/rcgroups-com-etoc-2013-821

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Wingspan: 69 in (1753 mm)

Building a Microaces Focke-Wulf

I reviewed the beautiful Microaces 1/24-scale P-51D Mustang kit in my January 2013 column. Microaces has changed the way we build kits by using highly detailed graphics applied to lightweight, self-adhesive covering.

Rivets, panel lines, and realistic weathering make these kits stand out from other micro models of this size. The material is applied over a Depron foam airframe, creating a rugged model with amazing looks. After building the P-51D, I could hardly wait to build the new Focke-Wulf 190.

Microaces Focke-Wulf

The 1/24-scale Focke-Wulf 190A-8/R8 Black 8 is a nice-size micro with a 16-inch wingspan and a flying weight of 2.3 ounces. It is available in a standard or deluxe kit option. The deluxe kit includes the AP05 5,000 Kv brushless motor and the XP-7A ESC. The kit includes everything needed to build and fly the model except for the receiver, battery, glue, and tools.



The Microaces 1/24-scale Focke-Wulf 190A-8/R8 Black 8 kit includes everything shown as well as an AP05 5,000 Kv brushless motor and an XP-7A ESC.

The recommended 3.7-volt, 300 mAh LiPo battery, UHU por foam glue, and spare parts can be purchased on the Microaces website. (See "Sources" at the end of this column.)

UHU por is my favorite foam glue and I recommend it for this model, which is designed around the popular Spektrum AR6400 or AR6400L receivers. If you are looking for a way to use that extra receiver

you have laying around, a Microaces kit is a good option!

It's All About the Stickers!

For me, building models is as much of a rewarding experience as flying them. It is also fun to try new building techniques. The concept of using stickers as covering material is neat, and they are fun to apply. The model seems to come to life with the application of each sticker.

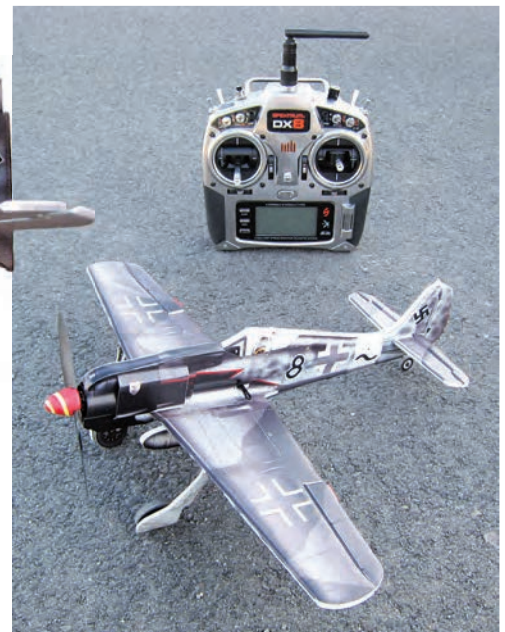
The manufacturer included on the sticker sheet the history of the aircraft and pilot who flew the model you are constructing. It takes some practice to correctly apply the stickers.

The instruction manual is well thought out and easy to follow, with images of each step of the assembly. Construction begins with the rudder, and it is a good part on which to practice applying stickers. You have to be careful when removing the stickers from the sheet because they easily tear.



Above: The model starts to come to life as you apply the stickers. I used a Spektrum AR6400 receiver.

Right: The Microaces Focke-Wulf 190A-8/R8 Black 8 looks amazing when complete. The beautiful graphics make this 16-inch wingspan model stand out!



MICRO-FLYING

Use tweezers to remove the stickers from the sheet and to apply them to the model.

If a sticker does not look correct you can reposition it, and if it loses some of its adhesive, apply some UHU por or other foam-safe glue to the part.

Microaces wants success for everyone who purchases one of its kits, so the company created a series of building videos that I recommend viewing if this is your first kit. You can find a YouTube link at the bottom of the company's webpage.

The model is easy to build, however a few areas of its construction can be challenging. When installing the pushrods onto the fuselage, it is best to attach them to the receiver. Make sure they are freely moving before you apply the side fuselage sticker over them. Leave the receiver in the model. Wait to install the rudder and elevator control horns.

When applying the stickers to the beveled edges of the elevator and



The Focke-Wulf 190A-8/R8 performs well in the air. It is capable of scale aerobatic flight such as loops, rolls, and inverted flight. Photo courtesy of Microaces.

ailerons, apply some UHU por glue to the beveled areas first. This prevents the stickers from lifting and possibly binding control movement during flight.

The model's spinner comes unpainted, so I wanted to find an easy solution to coloring it. I used a

yellow highlighter and a red Sharpie permanent marker. This worked perfectly because I could apply the red marker over the yellow highlighter without it bleeding through.

In the Air

My completed model balanced

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perfectly with the recommended 300 LiPo cell. I checked the controls and went outside to test-fly it.

The wind was blowing approximately 10 mph and gusting. I was not worried because I knew that Microaces models are durable and crash resistant. I flew off of a grass field, so I removed the landing gear for the first flight and gave it a nice hand launch into the wind. It flew right from my hand and climbed out nicely.


The model performs well and can do scalelike aerobatic maneuvers such as loops, rolls, and inverted flight. The aircraft looks beautiful in flight, and low flybys are enjoyable!

I slowed the model to test how it stalled. It dropped a wing and lost some altitude, but easily recovered.

Later in the day, the wind calmed down and I put in a few more flights with the landing gear in place. The gear adds some weight and drag to the model, but it still performs well. I made a successful takeoff from the

finely cut grass field. The model had a short ground roll, but the landings were straight as long as power was carried until touchdown.

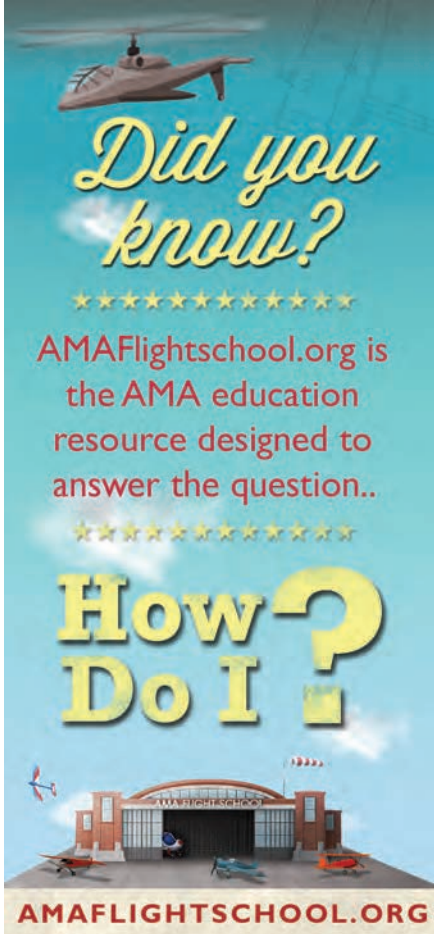
On one flight, I flew the model up to the cutoff point and had to dead-stick it in. Similar to most foam models of this type, it has a short glide ratio without power. I dropped the nose to pick up some speed and bellied it in undamaged.

The Microaces Focke-Wulf 190A-8/R8 is a great model with beautiful looks and good flight performance. I would not recommend it for beginners, but intermediate or advanced fliers would enjoy building and flying this airplane! Microaces says that the aircraft are flying history; I think they are flying art! 

SOURCES:

Microaces
support@microaces.com
www.microaces.com

Spektrum
(800) 338-4639
www.spektrumrc.com



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Reminiscing brings back the 1938 1/2A Berryloid

George Niebauer's original 1/2A Berryloid was designed in 1937 specifically for the 1938 Nationals Berryloid Best Finish event. George's model placed third.

The original Berryloid had a 6.5-foot wingspan, was powered by a Brown Jr. engine, and weighed less than 5 pounds. It had a silk covering and six coats of Berry Brothers red dope, sprayed on and rubbed down with Berry Brothers rubbing compound.

Sixty years later, George felt the time was right to resurrect his old model. He

had no plans and the original aircraft no longer existed, but with a little recollection, a few black-and-white snapshots, and a photocopier, he put it together with some minor changes.

George photocopied the formers and oiled the side view of the fuselage using a hot-iron-and-thinner method of image transfer. He split it down the center after cutting it out.

George completed the first fuselage half, removed it, flipped the plans over and installed the formers as on the first half, then glued the halves together.

The pylon was a block of 4- to 6-pound balsa, sawed in half vertically, and glued together with paper between. The soft balsa tail block was of lesser density than the pylon block to prevent problems with weight at the aft end. It was also cut in half vertically and glued together.


The stabilizer mount was cut from hard 1/16 balsa and glued to the curve made when the side view was cut to shape. A 1° negative incidence was built in.

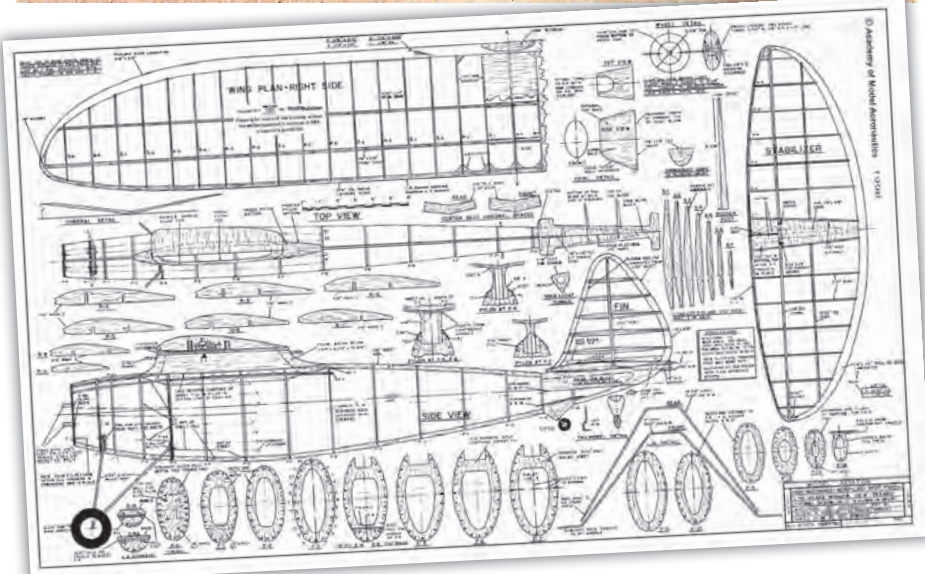
The tail wheel pod was lightweight balsa. George froze the plastic wheels then sanded them to a 2 1/2-inch diameter. The hubs were cut from soda can bottoms.

A lightweight empennage was important. The stabilizer was of conventional construction. The fin had laminated edges and the wing had a laminated TE from the tip to the center section. The DT limit line could be made from heavy monofilament fishing line, lightweight braided metal fishing leader, or wire such as CL leadout material.

George noted that the model should be balanced at 35%, approximately 4 7/8 inches ahead of the TE. The 1/8-inch washin was built into the port tip.

The Berryloid's first flight had a rich needle-valve setting and went out of sight. "Succeeding flights improved with a leaner needle-valve setting, but the climbout was too dramatic for 1/2A Texaco competition," George said. "It should be tamed down for maximum performance in that event."

The 1938 1/2A Berryloid was featured in the September 1998 *MA* as AMA Plans Service listing 861 and is available for \$14 plus shipping and handling. AMA members can access *MA*'s Digital Library on the magazine's website to read more about it. See page 148 or go to www.modelaircraft.org/plans.aspx for ordering information. 



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What about an electric LSF?

by Gordon Buckland

gordon@buckland.com

A slim, graceful, long-winged craft arcs upward smoothly and steeply into the summer sky, accompanied only by the faint whistle of air accelerating past its gleaming surfaces.

These words remind me of the thrill I experienced with my first full-scale, winch-launched sailplane ride as a 14-year-old boy. They are also the inspiring words that greet you on the League of Silent Flight (LSF) website.

The enduring LSF Soaring Achievement Program (SAP) has been spawning skilled RC Soaring pilots for 40 years, but recently, membership and activity has been steadily declining. For many years the current LSF president, Jim Deck, has had a unique perspective about this reduction in activity. (Jim has processed all LSF achievement forms for nearly a decade.)

Jim and the LSF leadership have scrutinized this downward trend and have proposed some ideas to revive activity. These ideas have seemed radical to some, but they need proper



LSF President Jim Deck gets ready to fly his Gnome in the RES class during the 2010 Nats.



The start of an electric-launch event, similar to ALES, sees all models launching to the same height during a 30-second launch window, as seen here at the Polecat 2012. Photo by Randy Brust.

discussion if they are to evolve into actual solutions.

Jim and I discussed this subject. He made some excellent points worthy of all Soaring enthusiasts' consideration. This is what Jim had to say:

“Over the past decade, it was my privilege to serve as LSF secretary for eight years. That put me in very close contact with the SAP. Over the past few years, two things have become evident. The number of aspirants entering the program was on the decline and activity in the SAP was slowing down as well.

“One could ruminate on the causes—the economy, the increased cost of competition, loss of flying sites suitable for winch or hi-start launches—all of these contribute in one way or another. In any case, it seems that the LSF—and RC Soaring in general—needs a shot in the arm.

“Observing activity in F3J competitions in the US provided an inspiration. Competition with winches replacing the hand towers, but retaining all the discipline of F3J, have become popular and increased the number of participants in this event. The key seems to be the convenience of a winch over the hassle of finding and using hand towers. Using winches provided F3J with a shot in the arm. This inspired a search for similar medication for RC Soaring.

“In recent years, pilots of electric-powered sailplanes have been experimenting with the concept of an electronic device to limit launch altitude. Their efforts have produced a new competition called Altitude Limited Electric Soaring (ALES). Sailplanes so equipped can reliably emulate winch or hi-start launches without the effort and space required by the latter. The convenience of ALES is fostering growth in the development of ALES sailplanes and the number of ALES competitions.

“Meanwhile, the popularity of the [Parkzone] foam ARF Radian has introduced a large number of new pilots to the joy of Soaring. These pilots



This tiny, electronic device has revolutionized electric Soaring. The CAM Height Limiter is an inexpensive and easily programmed unit that switches the motor off at preset heights of 100, 150, or 200 meters.

could represent a potential pool of new LSF aspirants. With the addition of an ALES device, these pilots can and do enter ALES competitions.

“It would seem then that simply allowing the use of an ALES sailplane emulating winch or hi-start launches to complete LSF SAP tasks and allowing ALES contests to count for LSF SAP

completion points might be the ‘shot in the arm’ mentioned previously. To do so, however, requires an official change to the LSF SAP. The founders of the LSF have protected the SAP from willy-nilly changes with bylaws that make changes to the SAP most difficult.

“In March 2012, using two popular

forums on the Internet and the LSF website, the idea of integrating ALES into the LSF SAP was introduced by the LSF executive board. From this effort, it was apparent that input from a larger percentage of the membership was needed before the integration could be seriously considered.

“Efforts are now underway to improve communication and reach that larger number by electronic means. Soon after those efforts are operational, the LSF membership will be in a better position to take steps to consider the integration.

“To help this happen, all LSF members are requested to make sure their email address in the LSF database is up to date by using the form on the LSF website.”



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Jim makes some good points and I think everybody must admit that without some changes moving forward, the LSF SAP is slowly, but surely, dying. In 2011, the LSF saw the lowest participation ever with only 22 new Level 1 achievers. There were 24 in 2012.

There are many different thoughts about Electric-Launched Sailplanes and the LSF, but the obvious options might be:

1. Adding electric launch to the LSF as an additional, but *separate*, SAP (maybe called the ELSF for Electric LSF).

2. Allowing electric launch under the same SAP with a change to the bylaws to accommodate this new method of starting a flight.

3. Design and start a new SAP for Electric-Launched Soaring separate from the current LSF.

A controversy with any addition of electric launch is whether the motor controller should allow a restart during the flight.

A restart clearly voids the flight, but a more important issue is how the ability to use a restart to save the model affects the piloting decisions during the task attempts.

The ability to save a low-flying

model from trees or water or to avoid a long walk by restarting the motor, can change the strategy a pilot employs during the attempt and also makes using such an electric-powered model a different and easier proposition than

evolve to remain viable. If the LSF cannot find a way to make appropriate changes to its SAP and allow some evolution, the LSF may eventually become the victim of changes over which it has no control.



The largest Electric-Launched Sailplane event in the US was the 2012 Polecat event in Carlisle PA, with more than 40 entries. Brust photo.

using a winch or hand-launched model.

The subject deserves more discussion. I urge everyone with an interest in RC Soaring's future to go to the LSF website (listed in "Sources"). Under the "LSF Program" tab, select "State of the LSF—2012" and "LSF Board Meets at Toledo" to read more.

If you aren't already a member, join the LSF. If you are a member, ensure that your registered email address is current.

The nature of RC Soaring is that it will continue to evolve. Soaring's largest SIG, the LSF, also needs to

There is much interest in Electric-Launched Gliders and the LSF would benefit from this extra participation. There is a way to make this work and the LSF board is working at it.

By sharing ideas, we can help guide Jim Deck and the LSF board members with their efforts to grow the organization in this changing world.

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SOURCES:

LSF
www.silentflight.org

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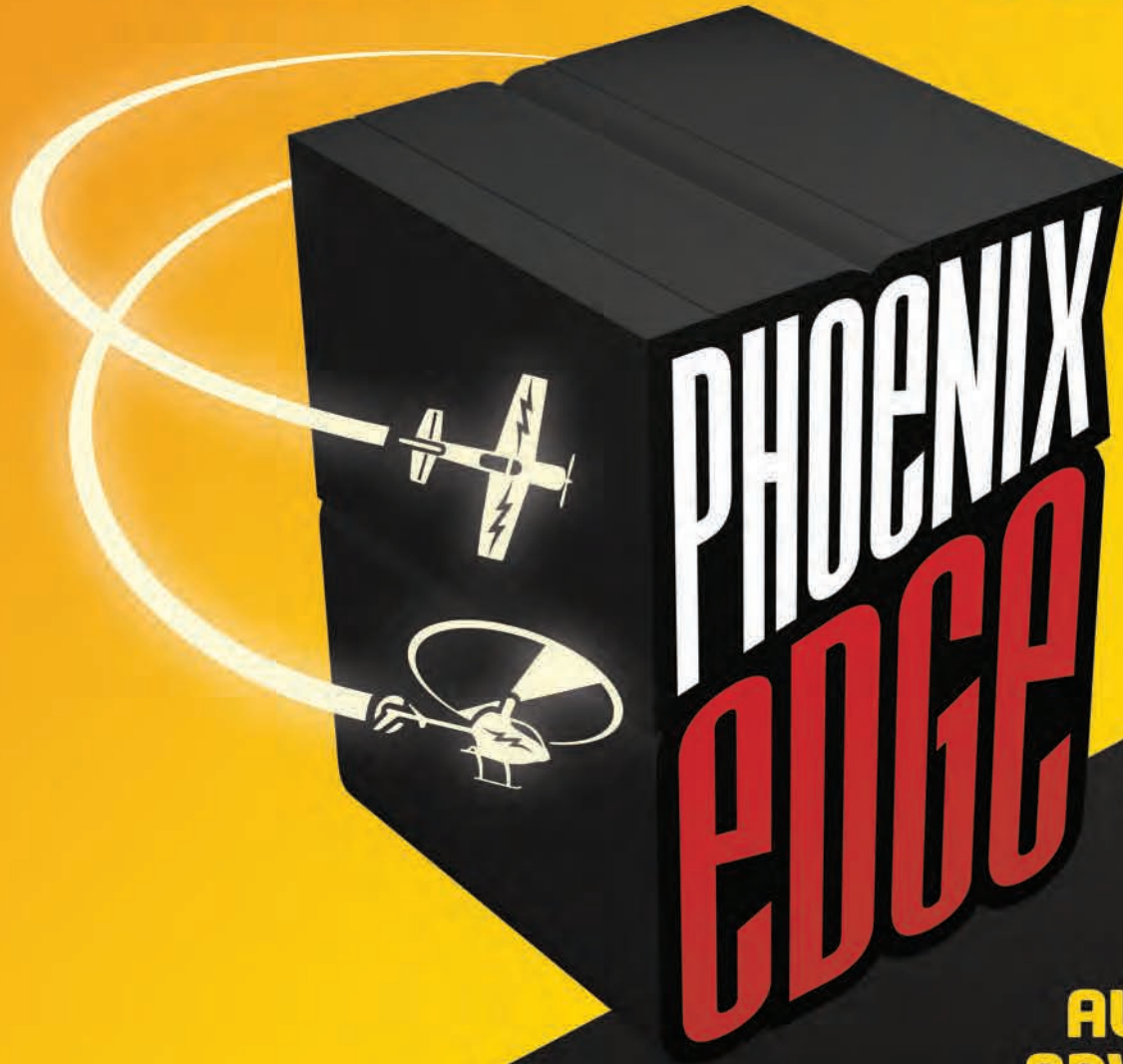
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An overview of Dave Scott's new book

by Mark Fadely
MDKJA@aol.com

Hello! I am happy to see you perusing the helicopter area this month. If you are a first-time visitor or are considering becoming a helicopter pilot, this will interest you.

I recently got my hands on a cool training aid for our hobby. It is Dave Scott's *Heli Flight Training* manual. This is one amazing resource that will help any pilot no matter what his or her skill level.

Dave Scott is well known for his hands-on 1st U.S. R/C Flight School in Wisconsin. Hundreds of RC pilots have benefited from his systematic approach to RC training. Dave's wealth of teaching skills is now compiled in his new book about helicopters.

The *Heli Flight Training* manual is more than a good source of information. It is a well-thought-out and organized step-by-step approach to learning how to pilot a heli. The book is broken into easily understood chapters of logical progress. The three main sections include these subsections:

Section I

- Ground School
- Hover Ground School
- Maneuvering Ground School

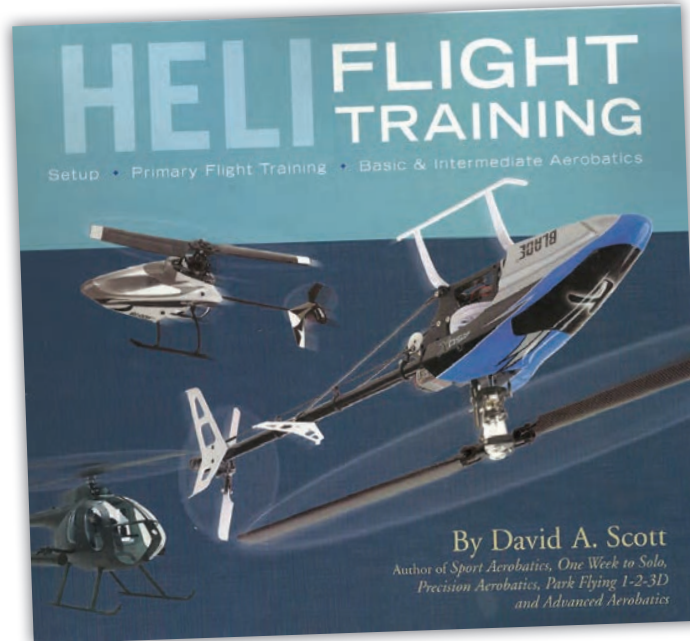
Section II

- Sim Training
- Real World First Flights

Section III

- Aerobatics
- Intermediate Aerobatics

Dave believes in using simulators, and why not? Simulators are used in all full-scale aviation training today. The difference in his simulator work is that exercises and goals are planned in a methodical sequence for a desired result.

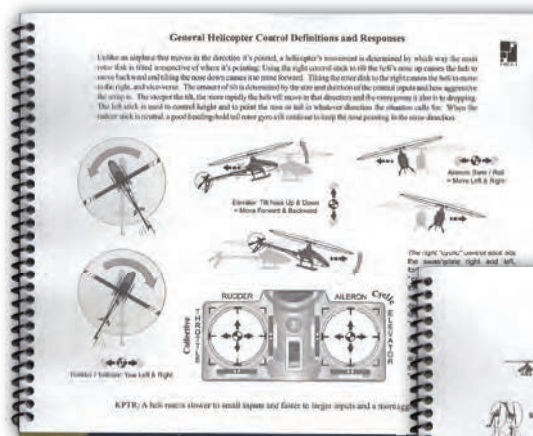


1st U.S. R/C Flight School has published the new *Heli Flight Training* manual, written by instructor Dave Scott. The school has trained more than 1,500 RC pilots.

There are no sessions in which pilots aimlessly fly around, crash, and then hit the reset button. This book teaches you the right way to learn so that when you are flying a real model heli, you will be safe and confident in your abilities.

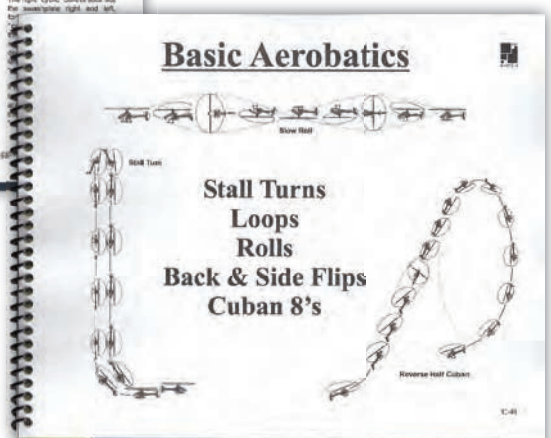
Here is an excerpt from page two of the book:

Much of the challenge flying helicopters stems from the fact that pilots often have to manipulate all four controls at the

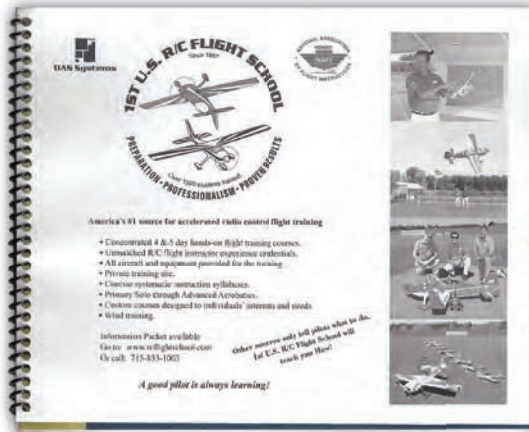


Left: Dave's book does a great job of illustrating the connection between the helicopter's movements and control inputs.

Right: The informational manual depicts a systematic approach to effective flight training. Author Dave Scott brings much of his full-scale training knowledge to the aeromodeling arena.



If you are serious about learning or improving your flying, you owe it to yourself to get this book, and possibly take a trip to the 1st U.S. R/C Flight School training facility in Wisconsin.



them all together. Plus, modern flight simulators are so realistic that the skills developed on the sim translate directly to the real world, so whether flying in a sim or real world, the approaches are the same.

Advanced maneuvers such as autorotations are covered in Dave's book. Plenty of diagrams show the position of the heli in relation to the correct position of the transmitter stick, which help reinforce when and how to control the machine.

I would recommend this book, and you might consider signing up for a real-world visit to the flight school. Training classes last four or five days and graduates have some positive testimonials that you can see online.

same time (compared to the average airplane pilot who uses only two controls most of the time). Fortunately, training on a simulator allows a heli pilot to learn the controls independently before putting

The pages detail a crawl/walk/run plan for success. As long as a pilot can stay disciplined and follow the progressive teaching steps, he or she will become a competent RC heli pilot.

Thanks for stopping by and I hope many of you will find this information useful. 🚁

SOURCES:

1st U.S. R/C Flight School
(715) 853-1003
www.rcflightsschool.com

Heli Flight Training
www.rcflightsschool.com/Heli_Manual.asp

International Radio Controlled Helicopter Association
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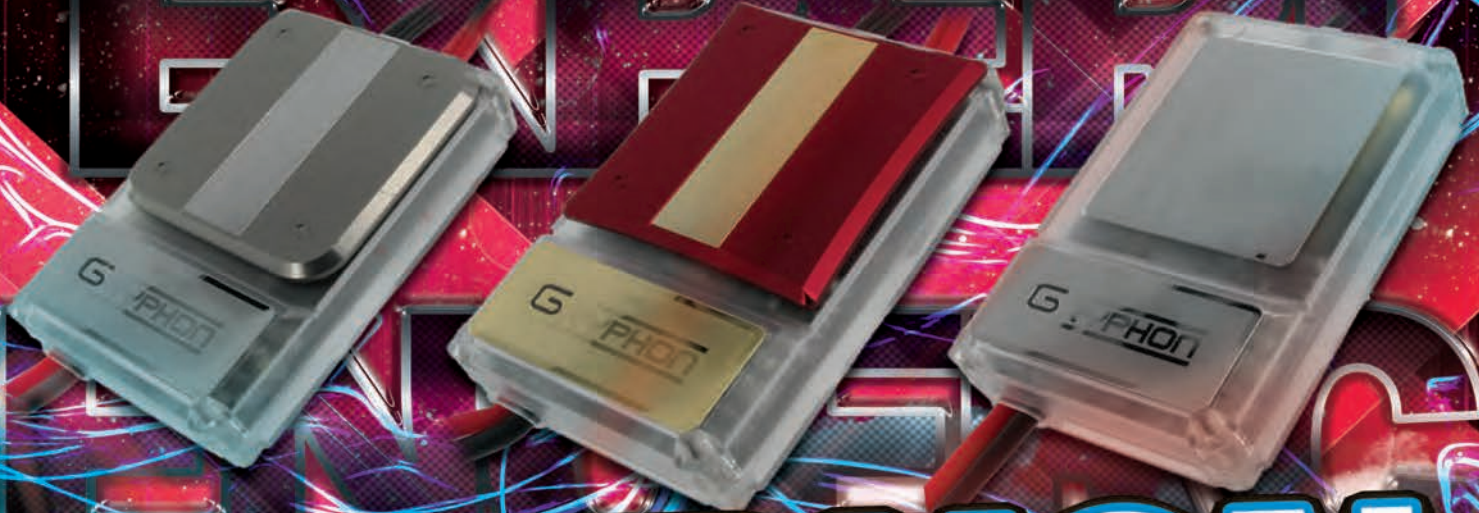
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Flight box options and weather woes

by *Don Grissom*

dongrissom@hilltopflyers.com

I am ready for another trip to Muncie, Indiana, for the RC Combat Nats. This year's contest will be held July 16-19. If you have never attended the Nats, consider making a trip if only for one of the events.

The Nats will start with Open B and Slow Survivable Combat (SSC) on the first two days, followed by two days of Limited B and 2948 Scale.

RC Combat participants who travel more than 500 miles to the Nats can receive a \$100 gas card from the Radio Control Combat Association (RCCA) for every 500 miles traveled, but you have to be registered for the event by the end of June.

RCCA will also have T-shirts for those who have registered for the Nats by the end of June. Because it will be nearly the end of June when you receive this magazine, you will need to call the AMA to register so your application can be received in time.

Flight Boxes

As I was getting ready for a contest, I noticed that my flight box was once again falling apart. When flying Combat, it's important to have an organized way to keep your airplane parts ready to go at any time. There are many times during a contest when changing a servo or replacing a fuel tank may be necessary.

One of the easiest flight boxes to buy is a tackle box at a sporting goods store or discount store such as Walmart. You want one that has divided storage containers that allow you to store small parts such as screws and servo horns.

Other items I store in the box include fuel tubing, glues, and replacement engine parts. Many times I have knocked parts off of an engine and repaired it with a simple piece. Velcro and zip ties are also stored in my box.



Nats registration forms are available at www.modelaircraft.org/events/nats/entryforms.aspx.

Left: William Drumm III's flight box also has wing holders that attach to its side. Notice the Plexiglas, which keeps fuel from getting on tools and parts.

Below: The all-in-one charging box comes in handy. The battery is located underneath the charger.



Be careful what you store in the top of the tackle box because sun and heat can damage some items.

Another flight box option is to make your own, such as the one William Drumm III made. Not only is it a place to store airplane parts, it also doubles as a flight stand. He uses Plexiglas with Velcro to protect the items in the top from spilled fuel.

In a previous design, William had a built-in charger, but to make it easier to charge airplanes in other locations, he made a separate box that contains the charger and a power supply.

It is important to keep everything in your flight box organized. During a contest, things move quickly and you want to be able to get what you need without having to search for something.

When Weather Is a Factor

In the past few years we have seen many new Combat participants in Virginia and Maryland. This year alone there will be more than four contests in the area.

I got together with David Smithgall and his wife, Audra, to get some information about a recent contest. As with many contests early in the year, weather was a factor.

"Rain, sleet, snow, thunderstorms, and downpours ... arghhh! Every weatherman was saying the same thing: 'Saturday's

forecast is going to be a washout.' Even my club members mistakenly assumed the

event was canceled, but I refused to let anything dampen it. Although the Farmer's Almanac says this is the weekend to plant potatoes and prepare the gardens, around here St. Patrick's Day means Combat at Battle over Blue Ridge!

"I tried to ignore the weather and stay positive. After all, these events take months to plan. I filed for the AMA sanction, registered the event on RCCA, encouraged pilots to participate, printed the score sheets, and rolled the streamers.

"The planes have all been glued, taped, or repaired, and wings are covered. I even have a few new planes to start the season with. I had everything packed and waiting by the front door ready to load in the truck in the morning. I tried to get a good night's sleep but the impending rain kept me restless.

"Finally, it was Saturday and I woke ready to go. I had a cup of coffee and walked outside. It wasn't raining and I felt pretty good about that. I took a quick shower and then started grabbing stuff to load in the truck. I opened the front door and like a bad joke—it was pouring!

"I loaded everything I needed in the rain and started the 40-minute drive over the mountains, cursing the rain and



Although the weather was questionable, the Battle over Blue Ridge Combat contest had a good turnout.

praying that it would just stop.

This was the season kickoff for Combat in my area and we were all antsy to fly. I expected several out-of-state pilots. It had been a long winter on the East Coast.

"As I pulled up the drive to the club field, it was as if my prayers had been answered! The clouds parted, the sky turned blue, and the sun began to shine. Very quickly, we shed our coats and T-shirts become the attire for the 60° day.

"Eight of the 10 registered pilots showed up and SSC began. We flew eight rounds, all-up, thinking the weather could take a turn for the worse. However, we managed to fly all eight rounds of SSC and four rounds of 2948. The only challenge was some moderate wind gusts that sent one of [Bob] Loescher's Scale planes into the top of a very tall tree.

"Kirk Adams took first in both classes with scores running very close. All said, the event was great. Everything went smoothly and it seemed like

everyone enjoyed themselves.

"The Blue Ridge Mountains are always a stunning backdrop, but add some Combat planes draping streamers in front of them and you have the best East Coast view around.

"A special thank-you goes to Ron at Crossroads Hobby Shop in Salem for all those late nights for last-minute parts. Thanks again to Virginia Aeromodelers of Bedford for hosting us and to all the club

members and pilot participants for their part in a great kickoff for Combat season at the Battle over Blue Ridge. As for the great weather, I guess we just had the luck of the Irish on our side!" 🍀

SOURCES:

RCCA
www.rccombat.com

Virginia Aero Modelers
www.kts2003.com/VAM_Home.html

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Building projects at the Toledo R/C Expo

by Jim Hiller

jetmodeler@earthlink.net

The 2013 Toledo Show is over, and it was again an exciting place for modelers. For us Northerners it was a great place to take a break from our winter building and see our friends from throughout the region.

The turbine-modeling industry is not strongly represented at the Toledo R/C Expo. Its representatives prefer to attend flying events to show off the latest products, but



Bob Bush's Skymaster A-4 is detailed and perfectly weathered. Underneath is an engineering masterpiece—full hydraulics, designed and built by Bob, for landing gear retraction, speed brakes, tailhook, and flaps.

Futaba, JR, Spektrum, Hitec, Airtronics, and XPS all attending and showing the latest products—new toys for the boys (and girls)!

On the show tables, Terry Nitsch brought out his latest Scale model, a Skymaster F-86, painted in the deep black of the Sabre Dance. It was named Best Finish at the Toledo Show.

Terry's model is complete with the functional LE slats, and we look forward to his thoughts on the effectiveness and flight characteristics of flying the F-86 with slats. The model is ready for test flights.

Greg Wright, from Aurora, Illinois, brought his latest building project, an F-100D. This is a sharp and well-detailed Scale model. The attention to detail and craftsmanship make this one sweet model and deserving of the Best Jet award at this year's show.

This is Greg's second F-100. His first F-100 is also an outstanding model built with aluminum Flite-Metal, then skinned with titanium in the hot section. The new F-100D is finished in a camouflage paint scheme with the correct amount of weathering. Some areas are worn through to reveal the aluminum. Greg is a talented builder.

The largest jet model on the table was Curtis Wade's Tomahawk Designs Hawk. Curtis stepped up big time with his winter project, which is a large model set up with enough power to kick out the performance. Curtiss had it ready for test flights, which were scheduled for the following weekend.

The engineering feat of the show, however, has to be Bob Bush's Skymaster A-4. He is back with a Navy aircraft this

time. For those who don't know Bob, he has been flying the same U.S. Air Force Thunderbirds F-100 Super Sabre for a long time, wearing out three AMT turbines.

He surprised us all by showing up with a Scale Navy A-4. He did an exceptional job of weathering this model. Navy airplanes are workhorses, not pristine and clean as is his F-100.

Bob is a man of many skills. He engineered, designed, and built his own hydraulic system in this A-4, then installed it in the airframe in a manner that makes it easily accessible for maintenance.

Not only is the landing gear retract system hydraulic actuated, but he also uses the onboard hydraulic system to power the gear doors, tailhook, speed boards, and flaps. That's a lot of hydraulics!

The brakes use an air cylinder moved by a JR 8411 servo to provide air pressure for braking. An air pump is not required to fly.

A standard turbine fuel pump, powered by an 1,800 mAh LiPo battery, serves as the hydraulic pump. The maximum operating pressure is set by a Robart pin-type onboard pressure indicator. As the pressure increases, the

don't let that

keep you away.

Jet modelers were all over the floor helping friends in the industry, bringing out the latest projects to display, and of course, taking in the sites and visiting.

Radio manufacturers showed up in full force, with



How could Greg Wright trump his first Flite-Metal F-100? How about with his latest F-100D covered in camouflage? Its detail, paint, and realistic weathering must be seen up close to be appreciated.

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Terry Nitsch is back with a beautiful Skymaster F-86, fully detailed for Scale competition. It has operating LE slats for low-speed handling. Terry is a master at flying Sabres.



pin extends and makes a microswitch shut off the hydraulic pump to avoid overpressurizing the system.

The hydraulic control valves are commercial units moved by individual JR 8411 servos—a bank of five—and located behind the A-4's removable nose cone. There is one set each for the individual systems operated by hydraulic power.

The operating concept of hydraulics is to run the pump to move oil to the actuator cylinder to move something. The control valves route the oil to the appropriate actuator cylinder and return oil from the backside of the actuator to the oil reservoir.

Bob uses an RC car fuel tank as his oil reservoir. After the actuator cylinder reaches its limits, the pressure in the system rises until the Robart pin-type indicator moves out and hits the microswitch to shut off the hydraulic pump, completing the cycle.

This sounds simple, unless you're Bob Bush. He believes so strongly in his basic hydraulic system that he is using it to control five different items. Those include five control valves and two hoses out to each actuator cylinder, three landing gears, three gear doors, two speed brakes, two flaps, and one arrester hook. It also has 11 actuator cylinders with two hoses each, or 22 hoses, routing from the nose of the aircraft back to the actuator cylinders.

The last item in Bob's hydraulic system is an accumulator tank that provides a last chance to drop the landing gear if the hydraulic pump fails. This pressurized source of hydraulic oil in the tank is large enough to allow one extension of the landing gear. It's a luxury that pneumatic systems don't have.

How well does the backup system work? Bob demonstrated the hydraulics so often at the Toledo Show that he exhausted the battery, so he seized

the moment and showed how the accumulator tank successfully lowers the gear without the hydraulic pump running. It worked like a charm.

A potential problem with the hydraulic system is finding a way to disconnect the hoses from the wings when they are removed for transport, without getting excessive air in them. This requires air to be bled out of the system.

Bob has a solution. He found a connector valve with a ball-check system to prevent the oil from leaking when disconnected. The system is located on the fuselage side of the connectors.

On the wing side of the connectors, he joined the two hoses to keep the oil in the wing cylinders from leaking out, which is slightly more difficult than disconnecting a normal pneumatic system.

Bob took time at the Toledo Show to explain the components required to make his hydraulic system. The movement of the landing gear with hydraulic actuation is the same as in full-scale aircraft. The scale gear takes approximately 3 seconds to retract.

I look forward to seeing Bob fly his new A-4 as hard and as often as he flies his F-100. He will truly test the system's durability and reliability. Bob knows he wants to fly his A-4 many times a day with little or no maintenance, which is what he had in mind when designing and building his hydraulic system. ✈️

SOURCES:

Jet Pilot's Organization
www.jetpilots.org

Toledo R/C Expo
www.toledoshow.com

There is a very thin line between “hobby” and “mental illness.”

—Dave Barry

by Mike Riggs

rcaerobatics@gmail.com

Since last year’s National Society of Radio Controlled Aerobatics (NSRCA) District 8 championships, I have sold one used tent and bought three. My pursuit of the ultimate “contest tent” continues.

Typical nighttime temperatures in the inland Northwest are significantly lower than afternoon highs, making for comfortable sleeping, even on the hottest days of summer. Even expensive tents generally cost less than a weekend hotel stay.

Charge Boxes

Charge boxes are part of my hobby. The bug killer box I presented in my July 2012 column still works fine. Why I needed another is truly a sign of mental illness.

With many 24-plus-volt chargers on the market, I purchased a 12/24-volt, 47-amp Feather Power supply. Feathermerchantrc.com power supplies are reasonably priced, computer power supplies converted for hobby use. Mine works great.

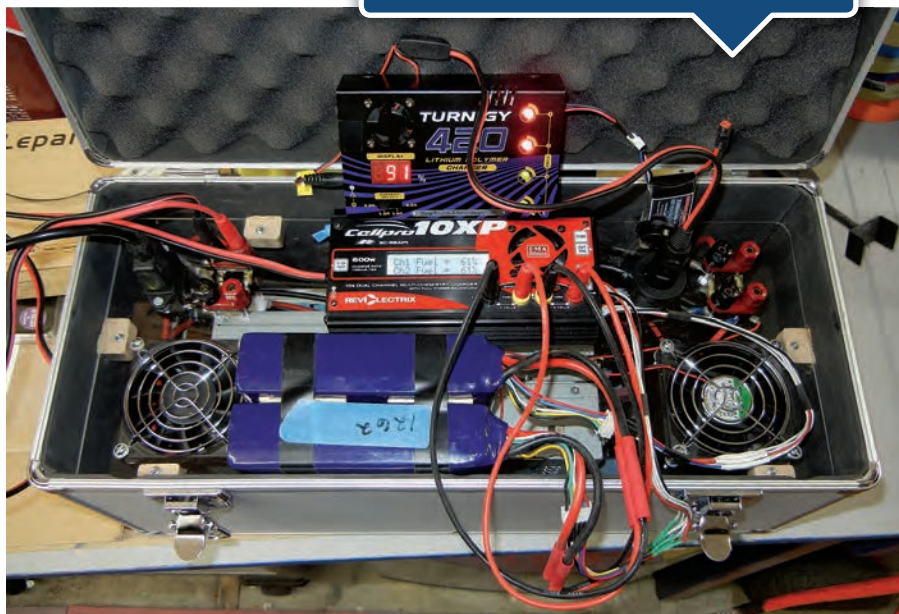
In addition to standard features, the new charge box sports a 12-volt automotive power plug—aka cigarette lighter. A car adapter will be used for charging USB devices during the day. This is a great feature for tent camping at contests.

Let’s Fly Sportsman

With the 2013 contest season in full swing and the RC Aerobatics Nats (July 21-25) and F3A World Championship (August 15-25) around the corner, this is a great time to give Pattern a try.

An expensive Pattern airplane is not needed to fly Sportsman Pattern. The purpose of Sportsman is to introduce pilots to Pattern.

Visit www.ModelAviation.com and click on Library to read the author’s previous columns.



The author’s new charge box is made from an XHeli EX1 250 aluminum carrying case.

Let’s take a look at the Sportsmen sequence. Specifically, let’s look at how the maneuvers are performed, and leave “how to get good scores” for another time. (I’m still learning how to get good scores!)

Maneuvers are flown in “the box.” Imagine half of an ice cream cone at 60° laid on its side projecting up and away from the pilot. All *box* entries and exits must be declared to the judges. Think of calling box entries and exits as turning the judges “on” and “off.”

I’ll share a few universal flying fundamentals:

- Have fun!
- Keep your wings level.
- Fly parallel to the runway.

Mastering these fundamentals ensures good scores and rapid matriculation through the class schedules.

Takeoff

Start downwind of your position and smoothly lift off directly in front of yourself. Call “complete,” turning the judges “off” 2 meters (6½ feet) above the ground.

Fly out and collect yourself, doing whatever you need to do upwind, staying upwind of the centerline, then make one downwind trim pass. Get it together again downwind before heading upwind. Call “entering the box” at the downwind box marker, and the judges are “on.”

Straight Flight Out

Keeping the wings level, maintain altitude and track parallel to the runway 100 meters (328 feet) out from the runway centerline. If you can see the top of your wings, they are not level.

Look for the bottom of the outside wingtip. Not seeing the top of the wing makes many inexperienced Pattern pilots

feel uncomfortable. It unnerved me.

Half-Reverse Cuban 8

Roughly two-thirds to three-quarters of the way across the box, pull 45° up. Count one-two-three and roll upside down, maintaining the 45° upline parallel to the runway.

On the three count, stay smooth with wings level. With a constant radius, pull to level. *Breathe!*

Straight Flight Back

This is the same as straight flight out. Use rudder to control the crab angle (parallel to the runway) in windy conditions.

Stall Turn Without Rolls

Pull vertical slightly before the downwind box end, correcting yaw and roll in the vertical line. Pull back to roughly one-quarter power and wait.

When the airplane stops moving upward (stalls), toss the rudder over while pivoting. Keep the wings perpendicular to the flightline. Pull power all the way back and gradually release the rudder during the downline. Pull smooth radius to level flight. Entry and exit altitude should be the same. *Check level wings!*

Two Inside Loops

On center, with wings level, pull nice and round, keeping the wings level and correcting the track with the rudder all the way around. Superimpose the second loop on the first. Call “exiting the box” upwind. *Breathe!* Reposition the airplane and call “entering the box” downwind.

Two-Point (2/2) Roll

A 2/2 roll means two of two points. A 2/4 roll means the first two points of a four-point roll. Doing 2/4 from upright would be pausing at knife-edge and ending inverted. For Sportsman (2/2), begin and end with wings level, centering the inverted point in front of your position.

Half Cuban 8

Smoothly pull $\frac{5}{8}$ of a loop, ending inverted on a 45° downline with a three count: roll upright, three count, and pull level.



A pilot on the flightline concentrates intensely during the April 2013 Georgetown Aero Modelers Association (GAMA) Pattern Clinic in Georgetown TX.

Don Ramsey spoke about the basics of Pattern, wind corrections, geometry of maneuvers, and expectations during the GAMA Pattern Clinic.



Double Immelmann Without Rolls

A Double Immelmann without rolls is a loop with top and bottom straight segments. Imagine two circles touching side-to-side. Draw a straight line touching top-to-top and bottom-to-bottom and you have a Double Immelmann without rolls.

Immelmann Turn

Pull a half loop at the upwind box end. As the airplane becomes level (inverted on top), roll upright. Check the heading and that the wings are level.

45° Downline

Headed downwind roughly one-third of the way across the box, push downward to 45°. The runway center bisects the downline. Pull to level and call the box exit. *Breathe!* Get the airplane lined up and call the box entry flying upwind.

Vertical Upline (on Center)

Pull to a centered vertical line pushing a constant (matching) radius over the top to straight-and-level flight. The top and bottom radius should match.

Split S

A Split S is the opposite of the Immelmann turn. Roll inverted, pulling a half loop to level, checking that the wings are level throughout.

One Horizontal Roll

Have a smooth, constant roll rate with the inverted portion centered in front of you. This is followed by another Half-Reverse Cuban 8 (see second maneuver).

Cobra Roll Without Rolls

Pull to a 45° upline, wings level, then at center push over the top to 45° downline. Pull to level at the same entry altitude. All radii—inside and outside—should be equal. Call “exiting the box” and breathe and relax. You are done. Come around downwind for a traditional landing approach.

Landing

On final approach, at 2 meters (6½ feet) above the ground, call “landing,” turning the judges “on.” In a nice, gradual descent, track down the runway centerline, keeping the wings level, rotate and touch down directly in front

of yourself. After rolling out, call "landing complete" and turn the judges "off"

At an actual contest, turn around and thank the judges. It's also a good opportunity to ask for feedback about your flight.

Wasn't That Fun?

The next time you're out horsing around at the flying field, give the Sportsman sequence a try. Fly it with what you brought.

Email me if you would like an electronic (printable) copy of the above maneuver descriptions. I'd also like to hear how you did. Maybe you could email me some pictures.

Regarding pictures, I need Sportsman of the Month pictures. On your next trip to the field, take your camera and snap a couple of photos.

I'd like to wish fair winds and safe

travels to those attending this year's RC Aerobatics Nats, and a special farewell to Team USA F3A, which is headed to South Africa. Go get 'em!

Flight complete. ✈️

SOURCES:

NSRCA
http://nsrca.us

2013 Sportsman Sequence
http://nsrca.us/images/stories/currentsequences/2013_Sportsman_Sequence.pdf

FeatherMerchantRC.com
feathermerchantrc@sbcglobal.net
www.feathermerchantrc.com

Team USA F3A
www.teamusaf3a.com

F3A World Championship
www.f3a2013.co.za

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Q-40 event coverage

by Aaron "AJ" Seaholm

aseaholm@gmail.com

This month, I'll recap two Q-40 events. One is on the West Coast and the other is on the East Coast—shore-to-shore coverage for the Pylon Racing faithful.

AMA Event 422, also known as Q-40, became a class approximately two decades ago. It is a popular, high-performance event. The consistency in performance between Jett and Nelson power plants, a wide range of competitive airframes, and exhilarating speeds that exceed 190 mph, all make this AMA's most adrenaline-enriched Pylon event.

MA has provided new column guidelines that allow words to be exchanged for photos, and this month I am going heavy on the photographs.

Basin Q-40 Classic

February typically is the time for the largest Q-40 event of the season because contestants tend to flock to sunny Phoenix for the Q-40 Classic. Because of field issues with the Speedworld complex, the event was moved to the Apollo 11 field in the Sepulveda Basin, near Los Angeles. The February 23-24 event was hosted by the San Fernando Valley Radio Control Flyers.

The Basin Q-40 Classic drew 57 contestants. Judging by the results, the air was fast and the competition was fierce.

Basin Q-40 results:

1. Rusty Van Baren	59.63	28
2. Gary Schmidt	1:00.70	28
3. Roy Andrassy	1:00.80	24
4. David Lloyd	1:02.25	24
5. Mario Salazar	58.45	22
6. Travis Flynn	1:01.05	22
7. Craig Grunkemeyer	1:01.66	22
8. Jim Allen	1:01.90	22

Fast time:

Mario Salazar 58.45



Above: Winners from the Basin Q-40 Classic were (L-R, front): Gary Schmidt, Rusty Van Baren, Doug Killebrew, Roy Andrassy, David Lloyd; (L-R, back): Doug Houston, Jim Allen, Mario Salazar, Dan Coe (Mario's caller), Travis Flynn, Randy Bridge, Craig Grunkemeyer, and Tom Scott. Robert Holick is not pictured.



Right: Basin Q-40 Classic Fast Time (58.45) winner Mario Salazar (L), next to contest winner Rusty Van Baren.

The wind picked up on Sunday, causing plenty of carnage, but seven rounds were completed. After the final round, Rusty Van Baren and Gary Schmidt were at the top of the field,

each with perfect 28-point scores. The gusty winds contributed to Gary nosing over during the flyoff, and Rusty cruised to victory. Congratulations, Rusty.



Our Canadian friends were out in full force at the 2013 Basin Q-40 Classic.

RC PYLON RACING

Newcomer Mario Salazar put down a blistering 58.45 time to capture the coveted Fast Time trophy. Well done, Mario.

Fort Lauderdale Q-40 Race

The Fort Lauderdale Q-40 race was hosted by the Markham Park Pilots Association (MPPA) club at the beautiful Markham Park field, April 5-7. I had not attended a contest at Markham Park since 2009, but I've always enjoyed racing at this location and 2013 was no exception.

There were 19 registered Q-40 contestants for eight rounds of racing action.

Fort Lauderdale Q-40 results:

1. A.J. Seaholm	1:00.53	24
2. Matt Fehling	1:01.43	23
3. Scott Causey	1:02.13	22
4. Gabriel Tahan	1:01.78	20
5. Joe Hodgin	1:02.77	19

Fast time:

A.J. Seaholm 1:00.53

CD "Rocket" Ray Brown oversees Q-40 action at the Fort Lauderdale race. Notice Dub Jett's September Faith coming around Pylon 2.



International competitors at the Fort Lauderdale Q-40 race included Nicolas Yepes (L) from Spain and Gabriel Tahan from Venezuela.

giving up your weekend to allow us to race.

The MPPA club members and Civil Air Patrol workers did a fantastic job officiating with only one refly required.

This was a smaller contest

CD "Rocket" Ray Brown graciously hung up his transmitter to start and guide the contest. Thank you, Ray, for

but the competition was excellent. There were countless photo finishes. Tight racing also leads to midairs and

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several models were lost on Saturday.

As I reflect on this race, the placing was great, but more than anything, the memories that come to mind are of the people. Reigning Q-500 National Champion Dennis O'Brien has to be one of the funniest men alive. My stomach still hurts from laughing.

I always enjoy spending time with Randy Bridge, Tom Scott, Ray Brown, Dub Jett, Billy Johnson, Mike Helsel, Gabriel Tahan, and the rest of my racing family. I have said it a thousand times, but will say it again: the people of RC Pylon are what keep me coming back.

I was fortunate that some of my mistakes did not heavily cost me. This, along with my teammate Scott Causey's typical perfect calling, allowed me to bring home some hardware. I was happy to see him finish third. You flew great, Scott.



Winners from the Fort Lauderdale Q-40 race were (L-R, front): Matt Fehling, A.J. Seaholm, and Scott Causey; (L-R, back): Joe Hodgins and Gabriel Tahan.

I was also happy to see that my teammate did not call our gracious tent host and good friend, Randy Bridge, to a faster time. Randy put down a 1:00.9, only missing Fast Time by 0.4 seconds. That was close!

Matt Fehling flew on rails all weekend to a second-place finish. Venezuelan Gabriel Tahan finished fourth and Joe Hodgins rounded out the top five. Congratulations to all of the top finishers. 🏆

SOURCES:

National Miniature Pylon Racing Association
www.nmpr.org

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The Vulcan's battery mount

by Bob Hunt

robinhunt@rcn.com

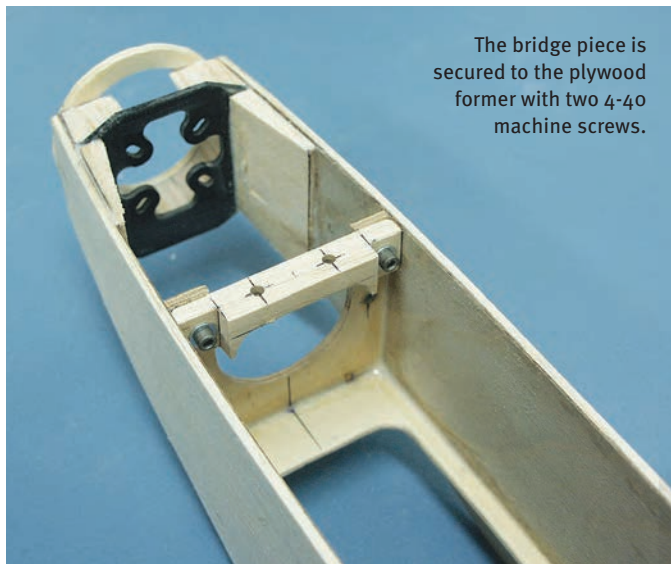
As promised, this time I'll discuss a battery mount for my project Vulcan. I have a specific way to mount batteries in my CL models that makes sense to me.

There are probably as many different ways to safely mount a battery in a CL model as there are people who want to mount batteries in a CL model! What I'm going to show you is one method. Feel free to modify, rework, redesign, or totally discard my mounting system for one that makes sense to you.

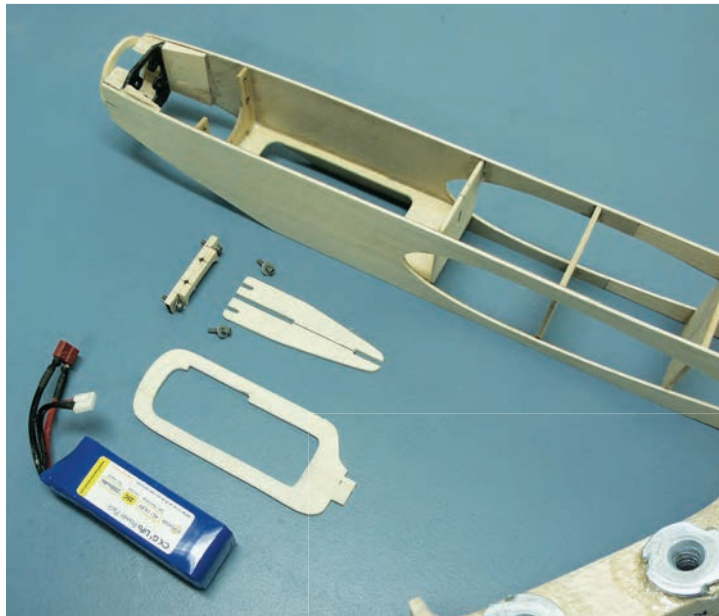
As do most, I started out mounting my batteries using hook-and-loop (Velcro) fasteners. I quickly stopped doing that when I saw a battery that was held in with that type of fastener eject from a CL model.

Some still use that method and don't seem to have any problems, but my image of a perfectly good battery flying through the air and then impacting the tarmac is still vivid; I wanted something more secure. I'm basically a "belt-and-suspenders" person, so I opted to use a system that holds the battery in with bolts.

When I started searching for a better

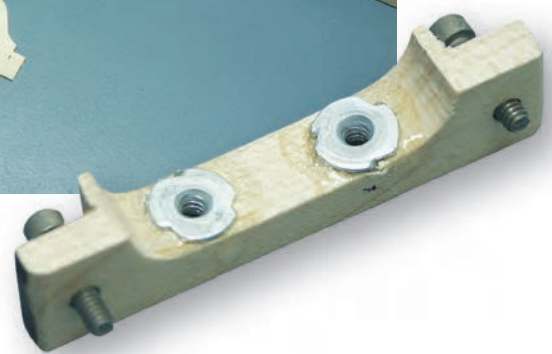


The bridge piece is secured to the plywood former with two 4-40 machine screws.



Above: Here are the parts required for the rib-type battery mount that Bob is using in the Vulcan.

Below: This battery mount bridge is made from 3/8 x 1/2-inch hard maple. It mounts to the 1/8-inch birch plywood former at the rear of the motor compartment, providing a mounting surface and hold-down for the battery mount plate.



way to mount my battery packs, I called my brainstorming buddy, Dean Pappas, and asked him for his thoughts.

We studied the forces involved and concluded that there was no significant force exerted on the pack that would make it move inward toward the pilot; centrifugal force takes care of that. All we needed to come up with was something that kept the battery from moving up or down under flight loads.

We also

concluded that we needed to install a soft "bumper" on the inner face of the outside fuselage side for the battery to rest against in flight. Dean and I said nearly simultaneously, "We need a rib!"

A simple, light, plywood plate, oriented vertically, captured the battery pack from front to back. At the time, I was retrofitting my Genesis Extreme with an electric system, and decided to try the "rib" battery mount. The model has flown hundreds of flights with that battery mount system and has proven to be strong and reliable.

As you may recall, I installed a birch plywood former slightly aft of the motor bay in the Vulcan's fuselage. This former had a large "U" shape cut from its center to allow air to flow out of the motor bay.

I used the narrow, vertical legs on this former as a mount for the front battery hold-down bridge. Before



The battery pack is positioned in the plywood rib and is secured by the horizontal mount support plate. Secure the support plate on top of the bridge piece with two 4-40 screws.

The rib that holds the battery pack can be custom designed to suspend it in the electronics

of the electronics bay. The rib should be custom fitted to the specific battery pack you are using.

Packs of a certain mAh capacity from each of the manufacturers tend to be the same size, so one rib should accommodate all of your packs. You can also experiment with ribs that place the battery in different positions within the electronics bay and then make several ribs—one to fit each of your battery packs—after you find the optimum placement.

The actual fit of the battery inside the rib should be such that the rib is not exerting too much pressure on the outside of the pack, but snugly enough so that the pack will not easily move within the rib.

A light friction fit is desired. You can use some clear acrylic adhesive to secure the battery within the rib or secure it to the rib with a short piece of 1/2-inch-wide reinforced packing tape.

I make a hold-down plate that interlocks with—and is securely glued to—the battery rib. This hold-

installing the plywood former, I drilled and installed two 4-40 blind nuts on its front face. These nuts allow a custom-made bridge that has two 4-40 blind nuts to be installed on its bottom face to accept the bolts that secure the battery holder.

The result is a removable front battery hold-down. The accompanying photos should answer questions about this part.

bay (what used to be called the tank compartment) wherever you desire.

This system allows you to make several ribs and experiment with battery placement vertically and horizontally within the electronics bay so that you can affect vertical (roll) and horizontal (pitch) CG changes at will.

The battery rib is designed with a tab at the rear that fits snugly into a slot in the light plywood former at the rear



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down plate prevents the battery from "rocking" within the rib. The front of this hold-down plate extends forward and rests on top of the front hold-down bridge mentioned earlier.


There are two slots in the front of the hold-down plate that correspond to the holes in the bridge piece that is fitted with the blind nuts. This is what secures the battery within the model.

I mentioned a "bumper." I like to

use a small piece of adhesive-backed weather strip attached to the outside wall of the electronics bay as a bumper to cushion the battery as it presses against the inside wall of the fuselage side under centrifugal force.

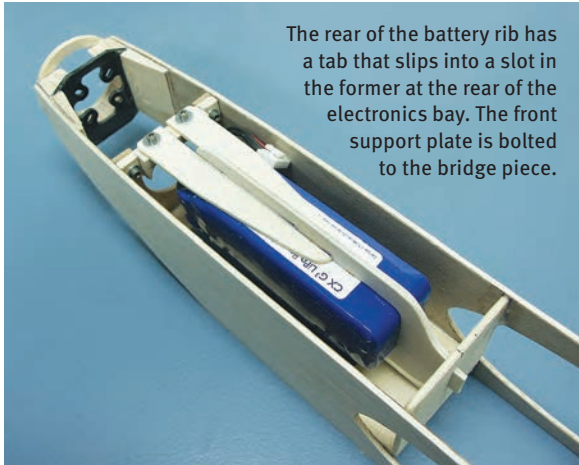
The pieces I use are nominally 1-inch long and 1/2-inch high. I use one positioned near the front of the pack and one near the rear of the pack.

Depending on how wide the fuselage is, you may have to make small balsa pillars on which to mount the bumpers to center the battery in the fuselage.

Study the accompanying photos for details of the battery mount fabrication and installation. 

SOURCES:

Precision Aerobatics Model Pilot's Association
www.control-line.org



The rear of the battery rib has a tab that slips into a slot in the former at the rear of the electronics bay. The front support plate is bolted to the bridge piece.

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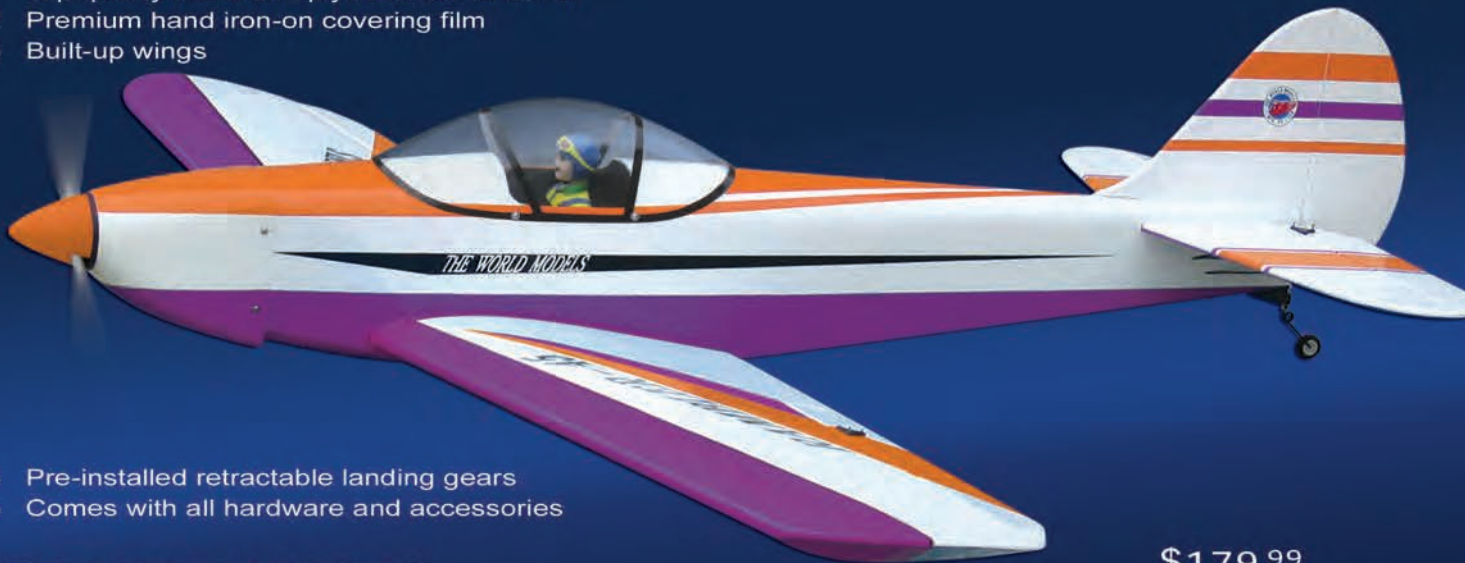
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March Madness, shutoff devices, and physical fitness

by Rich Lopez

richvon7@hotmail.com

This year's March Madness Contest kicked off the weekend of March 15 in Phoenix. Its main organizer was Lance Matassa, who got a great deal of help from Jeff Hanauer, Leonard Rennick, Sergio Garza, and several other Central Arizona Control Line Club members.

At one time, 1/2A High Performance Combat was held on Friday, followed by F2D on Saturday and Sunday. In recent years, the 1/2A event has given way to F2D/Fast. Judging by this year's entries, pilots in North America must have been suffering from cabin fever. Twenty pilots entered F2D/Fast on Friday and 25 entered F2D on Saturday and Sunday.

Leonardo Silva and Arnulfo Delgado, of the Mexican national team, traveled north to spar with US pilots. Several East Coast pilots traveled across the country to get out of frigid temperatures and to renew friendships.

Bob Burch is from Chicago, Andrey Nadien is from Philadelphia, and Latvian team member, Alex Prokofiev, lives on the East Coast. The Texans present included Richard Stubblefield, Howard Williams, Allen Deveuve, Lester Haury, and Andy and Bobby Mears.

Louisiana was represented by the Miniature Aircraft Combat Association (MACA) president, James McKinney, and George Cleveland. The California contingent included Don Jensen, Rich Lopez, Bill Maywald, Chuck Rudner, and Russ Willcox. The Arizona group consisted of Jeff Hanauer, Kevin Hebestreit, Alex Rennick, and Steve Stewart. Kansas was represented by Andy and Cary Minor. My apologies to anyone I left off.

F2D/Fast is an easy, fast-paced event. With the kill rule in place, there is no arguing about cuts and time scores.



Team Spain at the 2012 World Championships (L-R): Mario Rioja, Francisco Mons, Raul Mateo, and Manuel Mateo.

second place. I managed to finish in third after my opponent, Greg Hill, had a streamer-handling error and elected not to continue the bout. I am still amazed to watch Richard Stubblefield fly at his age without glasses. He can still put a good kill on the best of them. George Cleveland has been on the USA Combat team several times and continues to show his flying skills.

Several pilots tried out their new shutoff devices that feature an on-demand engine shutdown.

Alex Prokofiev is the brain behind the electronic devices and he appears to have worked out the bugs. He uses the device to land his model when he is ahead on points and there is no possibility of his opponent making up the difference without taking a cut.

Some would say that this is not demonstrating good sportsmanship; however, until the contest organizers

There is no way of protesting a kill. If your string gets cut, you lose. If you cut your opponent's string, you win. There is no need for a two-man pit crew because the local rules require the pilot to start his or her own engine.

This contest started midday and ran quickly. It was obvious that some of the pilots had been doing plenty of flying in the winter months. Bobby and Andy Mears were at the flying site on Thursday to test propellers and sort out their models.

Andy won the contest, so it pays to be prepared.

Andy Minor finished in

Team Australia at the 2012 World Championships (L-R): Tim Linwood, Richard Bellis, Michael Comiskey, Tom Linwood, Bruce Bellis, and Mike Comiskey Jr.





USA team member Allen Deveuve is dueling with Johan Schwartz of Germany.

(either in the US or anywhere else in the world) call this a sportsmanship violation, we will see this tactic used more often as shutoff devices improve.

Yuvenko Models now offers a two-stage plastic shutoff device that appears to work well. I report this after observing Russ Willcox using them at my home

field in Los Angeles. A couple of them worked right out of the package, but others required some sorting.

The magnetic devices that I have mentioned in previous columns require extensive testing to work well. You must be patient and methodical with your testing and adjustments.

The new F2D rules from the FAI state that the circle marshal can ask the pilots to land on demand after the match is deemed to be over. This rule was not applied in Phoenix and appears to be under discussion as to when and where it should be used. Stay tuned while this sorts itself out.

Alex Prokofiev again proved that he was the best pilot on that given weekend. His tactics and flying skills were flawless. Lester Haury came out of his year-long hibernation to finish in second place. Lester makes laser-cut pit box kits and F2D model kits.

Andy Minor finished in third place.

Bill Maywald practices at random intervals and yet managed to give a good account on contest days. Russ Willcox has his "mojo" back and has posted five wins since coming out of Combat retirement.

Andrey Nadien used his AKM engines effectively to finish high in the standings. Andrey makes high-quality mufflers for AKM and Fora engines. He also makes good replacement needle-valve assemblies for Fora engines.

Fitness and Pitting

The FAI rules seem to be evolving and some changes affect who the winner will be. At one time, the pit men could have the engine running on the spare model and they could actually run with it toward where the primary model had crashed or landed.

This was deemed unsafe, so now rules require the mechanic to not move from where the spare model is located. The other mechanic must run to the downed primary model, drag it to the

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pitting lane, remove the streamer, run back to the spare model, and then attach the remaining streamer so it can be launched. If the primary model is still operable, both mechanics must run back to its downed position, taking pit boxes with them.

Given the median age of our active Combat pilots, the mechanics' job can be stressful, especially if the model happens to crash on the opposite side of where the original pitting area was located. I never had an Olympic runner's speed, and become slightly winded with half a lap around the circle.

In Phoenix, the 90°-plus heat only made the running portion more exhausting. The only options are to find young, fast mechanics, use old, tired "Louisiana racing mule" mechanics, or work on your own fitness. I have been doing a lot of bicycle riding in an effort to stay somewhat fit.

Anyone who is going to seriously participate in F2D must make it a priority to regularly exercise. I turned 65 and can still wiggle the handle, so I want

to continue to fly and compete. I would, however, recommend that your doctor have a say in your exercise program. Find out what low-stress activities would be best for you.

MACA Membership

James McKinney spoke at the March Madness pilots' meeting about keeping the membership in MACA up and using some of the treasury to help defray the cost of having officials at the AMA Nats. Lance Matassa will travel to Muncie, Indiana, to run the team trials and will receive a small stipend from MACA. 🛩️

SOURCES:

MACA
www.maca.hobby-site.com:3535/

Yuvenko Models
yuvenko@ukr.net
http://yuvenko-f2d.com

Andrey Nadein
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Indoor FF sites and events

by John Kagan

john_kagan@hotmail.com

This is a great time for the sport of Indoor Free Flight. We have fantastic sites to enjoy, and enthusiastic people donating their time to host great contests.

Memorable contests from the beginning of this year include the West Baden Springs event in Indiana, the Round Valley Dome gathering in Arizona, and the EAA Flightfest in Wisconsin, plus many other large and small events. See the National Free Flight Society (NFFS) contest calendar for a complete list of flying opportunities.

West Baden Springs

It has been nearly nine years since we last had the opportunity to enjoy this legendary Category III (between 15 and 30 meters in height) building. The previous time we were here, the huge atrium had been restored, but work on the surrounding hotel rooms had yet to be completed.

This time the luxury hotel was in full operation, and in addition to experiencing one of the best flying sites in the world, we enjoyed top-notch accommodations. Many of us rented rooms that faced inward toward our coveted flying site, and we enjoyed fine dining and luxurious fainting sofas from which to watch our models lightly tapping the girders.

A unique aspect was the presence

Jim Richmond explains the details of his World Champion F1D. Without exception, every visitor to the West Baden Springs hotel was enthralled with the Indoor FF models. Photo by Nicole Jarock.



Above: A view from one of the West Baden Springs hotel balconies shows the modelers hard at work and the hotel guests enjoying the spectacle.

Left: The newly restored West Baden Springs hotel is a work of art and an Indoor FF paradise. Jarock photo.

of numerous hotel guests. The French Lick hotel was solidly booked, and an endless stream of people roamed the atrium floor, amazed at the models flying overhead.

Some speculated that our stopwatches were actually transmitters for controlling

our models. Others theorized that the airplanes were solar powered, which accounted for the long flight times. Most simply asked whatever was on their mind, and all of the fliers had a chance to describe the intricacies of their favorite models in detail to a rapt audience. It is not often that we get such enormous exposure, and we spent time to make sure it was fruitful.

Even with all of the people milling about, the air was pristine. Thirty-plus-minute flights would land feet from where they were launched. There was only minimal drift when the sun beamed through the ceiling windows. Hang-ups were rare because the disk in the center of the ceiling and the pendant hanging below were shrouded in plastic.

Words don't do this site justice,

especially considering that the West Baden Springs Hotel had previously fallen into such disrepair that it was nearly condemned. Search the Internet to see how heroic a feat it was for the Cook family to restore this Indiana landmark.

Special thanks to Walt Van Gorder for negotiating access, and to the West

Baden Springs hotel owners for having us. Everyone had a positive response to the event, from the fliers to the guests to the hotel staff, so it is likely that the contest will continue. Watch for the 2014 event and don't miss your chance to experience West Baden.

Round Valley Dome



Bill Leppard set a new F1D site record in the Round Valley Dome in Eagar AZ. Photo by Chris Leppard.



A roundup of the usual suspects at the EAA Family Flightfest includes (L-R) Lyman Hatz, H.G. Frautschy, Jeff Annis, Jim Buxton, Rob Romash, John Kagan, Mike Kirda, Alden Frautschy, Dave Hable, Keith Rosenberg, and Bob Johnson. Photo by H.G. Frautschy.

Another Category III contest was held in April, 1,500 miles westward at the Round Valley Dome in Eagar, Arizona. In its second year, the contest featured expanded hours, which resulted in even better evening flying conditions. The closed ceiling

structure made it nearly impossible to hang up, and the few airplanes that did were freed by a balloon's gentle nudge.

This national-caliber flying site is the result of tireless effort by Steve Riley and other regional model aviation proponents. They "bought" access through popular Delta Dart programs for local school children, and by maintaining a relationship with those

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responsible for site access—even when the person in charge changed many times.

The contest primarily serves the Southwest portion of the United States, but also attracts contestants from Colorado, California, Nevada, and beyond. Steve reports that they discovered an excellent new restaurant in the surrounding small town, and that a discounted rate at a good hotel has been negotiated.

With the rising cost of national-level sites, it is unusual to find a contest that is so economical. Use some of the cost savings to buy an airplane ticket or extra gas and attend next year. The 2014 event will be the first weekend in April and will feature an additional practice day.

EAA Family Flightfest

The 2013 EAA Family Flightfest, held in February at the AirVenture Museum in Oshkosh, Wisconsin, featured more than 750 museum guests enjoying static models, indoor RC airplanes, Indoor FF, and build-and-take balsa gliders, in addition to the typical exhibits and attractions.

We spent the days flying with kids and their families, and the evenings wringing out our own models amid full-scale aircraft. "Garbage Glider," where we build a Catapult airplane out of two Guillow's 8-inch-span, slip-together toys, is still a

premier event. Lest you think it trivial, consider that the winning times are now more than 30 seconds, and the winning Standard Catapult times were only in the mid-40s.

H.G. Frautschy has been the driving force behind this event, and Bob Campbell, the EAA's manager of museum operations, has been extremely accommodating to our group. Based on this year's positive feedback, it is likely that the event will continue. Give it a try in 2014—the experience is unique. ✈️

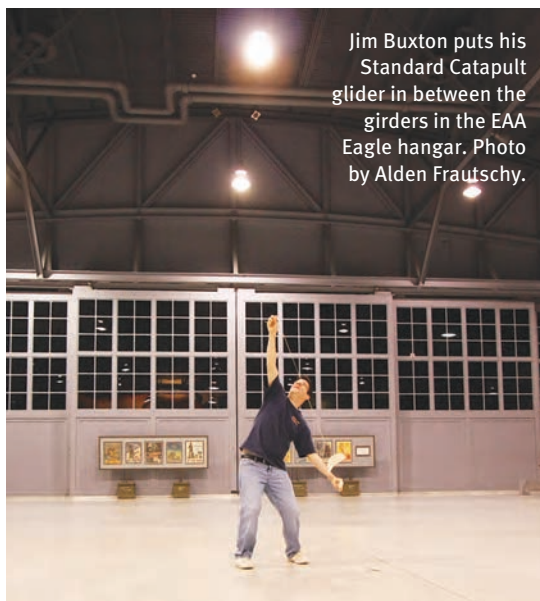
SOURCES:

National Free Flight Society
www.freeflight.org

West Baden Springs Hotel
<http://bit.ly/14OwwtT>

Round Valley Dome Indoor Contest
<http://bit.ly/12XIC5D>

EAA Family Flightfest
<http://bit.ly/12Pp2CP>



Jim Buxton puts his Standard Catapult glider in between the girders in the EAA Eagle hangar. Photo by Alden Frautschy.

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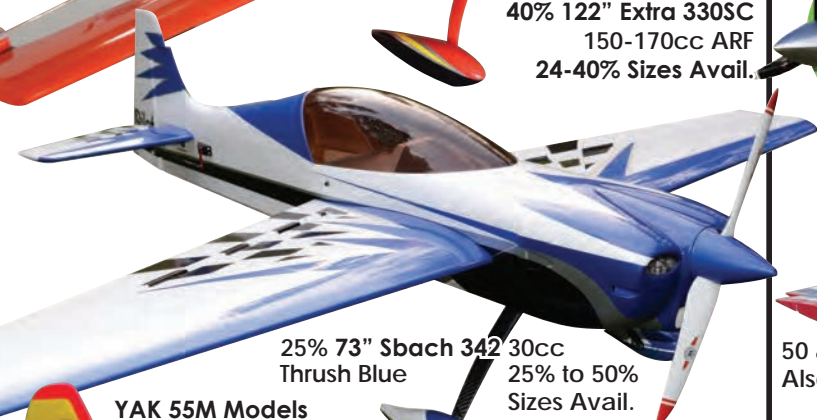


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Planes, people, plans, and procedures

by Gene Smith

grwhiskey@brighttok.net

Approximately two years ago, I saw a photo of Al Timken launching his Wanderer at the Flying Aces Club (FAC) Non-Nats. It immediately went on my building list.

The Old-Timer Rubber design was “rediscovered” by Bill Schmidt. Jim O’Reilly drew the CAD plans and Bob Holman offers the short kit. The model has proven popular and mine practically flew off of the board.

I moved the motor peg forward one bay. That allowed the model to accommodate a blast tube and helped with the CG.

Jace Pivonka

I met 13-year-old Jace Pivonka at the Magnificent Mountain Men’s Labor Day contest last year and was impressed by his flying skills. With only two years of experience, Jace consistently picked thermals.

He flies Indoor, Coupe P-30, and Catapult Gliders. When he was still in middle school, Jace outflew high school students in an Indoor competition. He has already given back to the hobby by serving as a mentor to United States Air Force Academy cadets at an academy event last December.

Jace plans to try out for the 2014 Junior F1B team.



The author’s Wanderer flies well and was easy to trim. The covering is Japanese tissue over 1/4-mil Mylar.

has been building with a passion since becoming interested in model airplanes through a Cub Scout project. He will become a Boy Scout this year and looks forward to earning an Aviation Merit Badge.

The Oily Bird article and plans were featured in *American Aircraft Modeler*, October 1968. The model is basically an enlarged AMA Delta Dart with a firewall for a Cox .020 engine. The engine run is controlled using an eyedropper tank.

The magazine’s digital archives don’t go back that far, but you could probably get a copy of the original article from the AMA Lee Renaud Memorial Library. Plans are available for this model, plans number 31393, through the AMA Plans Service.

Marcel Lavoie’s Balsa Cutting Tools

Several years ago I came across an interesting article by Marcel Lavoie on the FF Scale website, Small Flying Arts. Marcel outlined the use of some unique tools

Jace Pivonka is an up-and-coming FF modeler with the Magnificent Mountain Men FF club. Photo by Catherine Snider.



Aaron Narace Oily Bird

Ten-year-old Aaron Narace and his father, David, had fun at the AMA Nats last summer, flying several models including an Oily Bird. Aaron



Aaron Narace flew his Oily Bird at last year’s Nats.

for quickly and accurately cutting the uprights of stick fuselages.

The article was interesting, but I wasn’t motivated to use it until I discovered that Marcel had produced a three-part video tutorial illustrating his



Apply the technique described in the text and your model can have a beautifully framed canopy.

also means that the fuselage sides will be identical. Try Marcel's method and I think you will be pleased.

To find the video on YouTube, use "harrier1934" in the search function. A nice pictorial that documents the tool and jiggling block sizes is also available online.

lightly doped to intensify the color. Apply glue stick to the reverse side of the tissue (the chalked side if you've done that). Let it dry then cut out the appropriate frame shapes for your canopy.

Carefully place a strip against the canopy with the glue side facing the plastic. Run water over the tissue using a small, pointed paintbrush. The water will penetrate the tissue, dissolve the glue, and attach it to the canopy. Smooth the piece with a fingertip and let it dry in place.

The tissue will shrink as it dries, conforming to the surface of the plastic. After the tissue pieces have dried, apply a coat of clear dope using a small, pointed paintbrush. The same

technique. It can be seen on YouTube. It convinced me to get out of my building rut and give Marcel's method a try.

Marcel uses sharp, single-edge blades mounted on tongue depressor sticks. The long sticks allow the builder to easily see when the blade is vertical. Hard balsa blocks with pins are key to the technique, allowing the top and bottom longerons to be raised from the board as the uprights are slid into position for cutting.

Keeping those blocks on the plans

Canopy Framing Techniques

This canopy framing tip isn't my idea, but I wish it was. Begin with tissue of the proper color for the canopy frame. It can be chalked or

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technique works for tissue trim applied to tissue-covered surfaces and for windscreen trim on cabin models.

Comet Porterfield Outdoor Championships One-Design

The One-Design aircraft for the 2013 FAC Outdoor Championships, September 5-6, in Muncie, Indiana, is the 25¢ Comet Porterfield. For details, check the contest flyer on the FAC website.




Bob Clemons' slick Comet Porterfield spans 24.5 inches and weighs 33.4 grams empty. Covering is yellow Esaki tissue with black tissue trim. Clemons photo.

Veron Hawker Fury Build

If you are interested in watching a model-building video that will bring a smile to your face, go to YouTube and search for "Veron Hawker Fury Build." One would never guess that it could be so much fun to watch a stick-and-tissue model being built!

Shorty's Basement

Shorty's Basement has a new, improved website. Check "Sources" for the website address. 

SOURCES:

Jim O'Reilly Model Plans
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Bob Holman Plans
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Stephen Gay - CA
John P. Grebas Jr. - MO
William E. Head - IA
Sean Hollick - IN

\$50 to \$99

95th Street Group - KS

NATIONAL MODEL AVIATION MUSEUM

PATRONS

Steven R. Adams - NC
Jaime F. Angulo - CA
Sean Hollick - IN
Michael Holmes - IN
Jim W. McConnell - WI
Lewis E. McFadden - OK
Claude R. Mount - LA
Alan P. Ohst - CA
Roger Sewell - CA
Timothy W. Stevens - TX
Josh G. White - TX

In honor and in memory of

95th Street Group - KS (\$50 Education Fund)
In memory of Stephen B. Carter

District IV - NC (\$50 Museum Fund)
In memory of Ellen Rice

Jennifer J. Stout - TX (\$25 Education Fund)
In memory of Ellen Rice

Patricia Olives - MN (\$100 Education Fund)
In memory of Jon Davis

WALK OF FAME BRICKS

Mr. and Mrs. William F. Colvin - OK - \$50
Mr. and Mrs. Jim Davenport - OK - \$50
*Contributions toward a \$1,000 granite brick
in memory of Jimmy and Ellen Rice*

Ruby Yeomans - DE - \$100
In honor of Stewart Yeomans

Barry D. Zehm - AZ - \$100
In memory of Max Kaufman

Photos by Pat McNamara, Jerry Smith, Jay Smith, Greg Gimlick, Jennifer Drebaugh, AMA staff



National Model Aviation Day

August 17, 2013



The inaugural National Model Aviation Day will be held on August 17, 2013. The event was established to commemorate and promote the hobby. Proceeds will go to support the Wounded Warrior Project, a group with a mission to raise awareness and enlist the public's aid for the needs of injured service members and their families.

Clubs can register to participate in National Model Aviation Day by visiting www.modelaircraft.org/membership/clubs/nmad.aspx. Registered clubs can share ideas for fundraising, generating media

exposure, and attracting spectators.

AMA will give all donations received to the Wounded Warrior Project on behalf of the many clubs participating. With club and member support, we believe this will be a great event that will promote the hobby and aid an organization that benefits our heroes.

For more information about National Model Aviation Day, visit www.modelaircraft.org or call Mandee Mikulski at (765) 287-1256, extension 277.

MA • Thursday, January 23, 2013

OBITUARIES

Francis Weldon Smith, 91
 CARY — Weldon Smith, born March 21, 1921 in Cary, New York, died January 19, 2013. He was preceded in death by his parents Louise (Kreuzer) Smith and Francis Smith, and his beloved wife, Lee Ann (Krupap) Smith.

Mr. Smith grew up in Oakland, California and served the World War II as a pilot in the Army Air Corps. Following his honorable discharge, he began a 35-year career as a pilot for United Airlines. He retired in 1981 as a 747 Captain and flew his last flight for United from Honolulu to Chicago.

On February 23, 1947, he married the love of his life, Lee Ann Krupap, a former United Airlines stewardess. Married for nearly 59 years, they had four children and resided in the Chicago area for the past 40 years. He was in Towne most recent years.

Nancy J. BARRY, 65, passed Health She late O. gribu. atten also (quos; Socie Club. This is he. She. twif

Continuing his legacy: Weldon Smith's love of aeromodeling will live on

Weldon Smith, AMA member and friend to the hobby, passed away at his Chicago-area home on January 19, 2013, at the age of 91. To ensure memorial gifts would benefit something he loved, his family requested that donations made in his memory go to the AMA's Education Fund, to promote education through model aviation.

Sandra DeSobe, Weldon's daughter, contacted AMA. "As a lifelong aircraft modeler and Life Member of the AMA, designating the organization as a memorial was the perfect way to honor our dad's life. The staff at the AMA made the process seamless, providing us with all the information necessary to acknowledge the many gifts in a very timely manner," she said.

Weldon got the aeromodeling bug in 1932. He purchased a 10¢ Puss Moth rubber-powered kit and his lifelong hobby began. Weldon won several contests with airplanes of his own design.

Free Flight gas and glow models were Weldon's first love. In 1957, he took an interest in Radio Control. In 1962, he built the

Talon Zephyr, named after the zippers used to close and open the hatch. The model was published in several magazines. Weldon began focusing on electric-powered airplanes in 1986 and in 1990 his first electric design was published.

To his friends and fellow club members, Weldon was known as the "Giant Aircraft Specialist of Prospect Heights, Illinois." He was a National Model Aviation Museum Patron and a regular donor to many of AMA's charitable programs. For his love of model aviation, Weldon will be remembered by those who knew him. Through memorial gifts, the hobby for which he was passionate, will live on.

Many people have made a lasting tribute to a friend or loved one through a gift to the Academy of Model Aeronautics.

To honor someone special, AMA offers several memorial contribution options:

- Donations can be accepted in honor or memory of a loved one. Contact AMA's development team and indicate the fund you would like to support. All memorial donations are recognized in *Model Aviation* magazine. Notifications are sent to the family of the honored person upon request.
- Include the AMA's charitable program information in your loved one's memorial announcements as Weldon Smith's family did. As a nonprofit organization, AMA acknowledges all gifts of more than \$10. Donors will receive a personalized thank-you and are recognized in *Model Aviation* magazine.
- Memorialize your loved one with a brick in the AMA Walk of Fame. Bricks start at \$100. They can be purchased online or you can contact the AMA development team.
- Tell your loved one's story and help preserve the history of model aviation by submitting his or her biography to the AMA History Program. Visit www.modelaircraft.org/museum/history.aspx for submission guidelines.

For additional information, please contact Mandee Mikulski via email at mandeem@modelaircraft.org or call (800) 435-9262, extension 277.



AMA News

Announcements, news, and information from the Academy of Model Aeronautics and the elected district representatives

VIEW FROM HQ by *Dave Mathewson, AMA Executive Director*

Make sure your summer includes modeling fun

davem@modelaircraft.org



It is only a couple of short weeks before the 2013 Outdoor Nats begin at the International Aeromodeling Center (IAC) in Muncie, Indiana.

As much as it is a competition, it's also a time when old acquaintances are renewed and new friendships begin. At the Nats you'll find competitors who have participated for decades alongside those who will be here for the first time. It's an experience that many will tell you is an important part of their summer.

The Nats are conducted throughout a five-week period divided by modeling discipline. Depending on the number of entries, some events only last for a day or two and others for a week. Some form of aeromodeling takes place nearly every day during the five weeks.

Organizing the Nats and running the competitions is unique. Although AMA and the Nats Management Committee are responsible for the logistics, registration, site preparation, coordination, etc., the relevant AMA Special Interest Group (SIG) typically runs the actual competition. Both are integral in overseeing a successful Nats.

Nearly all of the SIGs heavily rely on volunteer support to help fulfill their responsibilities. Countless people make the annual pilgrimage to Muncie simply to volunteer. Without

these people, the Nats wouldn't be nearly as successful as it is.

In addition to the Outdoor Nats, there is an Indoor FF competition. For the last several years, the competition was held in a facility at East Tennessee State University. This year's contest will be held in August at the University of Illinois Armory in Champaign. Many of you are familiar with the facility because it is where the annual Hobbico/Great Planes E-Fest is held.

At the Nats you'll find competitors who have participated for decades alongside those who will be here for the first time. It's an experience that many will tell you is an important part of their summer.

For many, the Nats is as much a fun event as a competition. Although it's certainly a national competition, it's also a place where modelers help each other and camaraderie is the order of the day. It's not unusual to see competitors help each other by critiquing flights or by lending a part or two to someone in need.

I encourage you to visit the IAC during the Nats and watch some of the world-class competitions. Visit www.modelaircraft.org/events/nats/natsschedule.aspx for a schedule of individual events.

If you can attend, make it a point to visit the AMA's National Model Aviation Museum. The museum is the largest of its kind in the world.

You'll also want to take a moment and stop in at the AMA administration building. We'll be happy to show you around and introduce you to members of the AMA staff who work so hard to make sure your model aviation experience is as good as it can be.

If you can't make it to the site, you can also subscribe to *NatsNews*, an electronic newsletter published daily during the event. To subscribe, visit the AMA website.

Give some thought to participating in a future Nats. If you're new to competition, I guarantee you that someone will be there to help you and it is fun.

As we enter the outdoor flying season, many of us will be attending one or more of the nearly 2,400 events AMA sanctions each year. Although many of the events are competition oriented, there are just as many organized fun-flies, fly-ins, or casual get-togethers.

The common denominator in each of these gatherings is that someone has stepped up to volunteer his or her time to direct the event. The CD is generally supported by a number of other volunteers who

freely give of their time to make sure the event you're attending is a good one and that you have an enjoyable experience.

Many of these events take place at a club field where the members have generously agreed to give up a weekend of flying so it can take place. In many cases, the only thing these CDs, volunteers, and clubs get in return is your thanks and appreciation.

At the end of an event, before you leave the site, stop by and say thank-you. It's the least we can do for those who have given so much of their time so that we can have a weekend of fun.

See you next time. 🚁

A geotextile runway: hard work but good results



As reported last month in Bob Brown's and Dave Mathewson's columns, AMA will be celebrating National Model Aviation Day on August 17, which

will be roughly 1½ months away when you read this.

I encourage our clubs to plan a flying event that day and to invite their communities to participate. Consider having a benefit fun-fly with the proceeds going to the Wounded Warrior Project. This charity uses its funds to support the rehabilitation of our injured military personnel, and you couldn't find a more worthy cause. If you haven't planned an event for National Model Aviation Day, please consider doing so.

I have been involved in my club's discussion on the possibility of installing a geotextile material on a portion of our 1,050-foot runway. Although we have a good flying site, smaller, electric-powered models and EDF aircraft either can't take off from a grass strip or their landing gear or vertical stabilizers are damaged when they get caught in the grass and flip over. Smaller electrics offer a less-expensive entry point for people new to our hobby.

We wanted to take a look at a club's flying site that uses this type of material for its runway. I had the opportunity to meet with members of the Mentor Area Radio Control Society (MARCS) and they had exactly what we wanted to see.

I made arrangements with Dale Ties, MARCS vice president. Clark Follett, Brad Davis, Jim Goodemote, and I made the trip to Geneva, Ohio, where we also met with Dave Tomaric and Barry Bertagnolli. We learned about the club's field and I asked Dale to send me information about how the members put the field together. Dale sent the following:

"As has happened to a number of flying clubs, there comes a time to look into a new flying site. The MARCS had to do just that in 2009, as a new flying

site was needed. After looking long and hard, we heard about a possible site in Geneva, Ohio. After negotiating a lease with the ORCO Sportsman's Association, on July 1, 2010, we had a new flying site and a lot of work ahead of us.

"During a club meeting, a club member suggested looking into geotextile material as part of our runway. After looking into US Fabrics material and [its] flying site usage, I recommended it to the club. With a vote by the membership, we purchased four rolls, each 15 x 300 feet long.

"After the contractor finished his work moving dirt—leveling the field and pit area—it was time to roll out our runway. In a matter of days we had the material rolled out, and temporarily stapled to stretch it out.

After a few days in the sun the Geotex tightened up like MonoKote does, allowing us to permanently staple it in place. Each 6-inch staple needed to be placed 1 foot apart and no more than 1 inch in from the edge. A tool was made to make this task easier but nothing could change the time it took to place nearly 1,000 staples.

"Before the 2010 season ended, we had built an outstanding field. [We] purchased a new storage shed, pit area, fencing, shelter, and four flight stations. On June 5, 2011, we dedicated our field.

"In every club you have members [who] rise above others. We had such a member in Ken Page. Ken always had time to help, and mentor others. Upon his passing, Ken willed a generous amount of money to our club. Without our club's New Field Fund and the donation from Ken Page, a lot of what we accomplished would not have been possible in such a short period of time.

"Thanks to Ken, his family, friends, and club members for making our flying site possible. Our field will be known as the Ken Page Memorial Field and we now hold our Memorial Fun-Fly there each June.

"For more photos and information about our field or the Mentor Area Radio Control Society, go to www.mentorrc.com."

I flew at the MARCS field and when we left, we were convinced that the Geotextile material would work at our field. My thanks to Dale and his club members for their time and information. This is a less expensive way to provide a paved runway at a fraction of the cost, and is gaining momentum across the country.



Aerial view of the MARCS field.



Dave Tomaric, Clark Follett, Dale Ties, Barry Bertagnolli, and Brad Davis discuss the Geotex.



Ken Page's memorial stone.

It seems that every month I report on the passing of an AMA member. This month I say goodbye to Doug Severson who passed away in March. He was a good builder who loved Scale World War I aircraft and more. Doug's family and his club, the Sky Rovers R/C Flying Club, of Phelps, New York, will sorely miss his presence, and so will I.

Until next month, help secure our future and take a youngster flying. 

District II—New Jersey, New York, Europe



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Do you think that West Point military cadets fly model airplanes? In 2010 Maj. Matt Rowland of the U.S. Army contacted Hudson Valley Radio Control Club (HVRCC) member Dan Landis to do just that.

Maj. Rowland was seeking a flying site to test the cadets' Society of Automotive Engineers (SAE) Aero Design competition projects. Since then, a great relationship has developed between the Army's famous academy at West Point and the HVRCC, located in Haverstraw, New York.



West Point cadets with Bruce Leach (L) and Haverstraw Town Supervisor Howard Phillips.

The SAE competition is open to college teams and provides students with real-life engineering challenges. The students' aircraft must lift weight and successfully fly a pattern. Students are issued a 2.4 GHz radio and an O.S. .61 engine. Their airplanes must be designed and built without direct involvement from RC experts, pilots, machinists, or related professionals. All aircraft must be original designs

conceived by the student team members. Standard model aircraft hardware is allowed.

Now in its fourth year, the partnership between West Points Aero Design team and the HVRCC is a great example of how aeromodeling is the seedbed of tomorrow's aviators and engineers!

Associate Vice President (AVP) Peter Seiffert has long been associated with Syracuse-area educational activities, including presentations at the Museum of Science and Technology (MoST), in Syracuse, New York.

This past spring, Peter led demonstrations of indoor RC flying for 90 Scouts, 30 parents, and Scout leaders. Members of the Syracuse Thunderbirds Aero Radio Society held a demonstration of helicopters and airplanes, and a question and answer session followed. Check out the education section on AMA's website for information you can use to give educational demonstrations in your area.



AVP Peter Seiffert with Scouts at MoST.



Phil Artese demonstrates aircraft functions at the MoST event.

District II lost a great friend in Daryl

Hull, who owned Mardel Hobbies and Crafts in Schenectady, New York, for more than 30 years. Daryl also served as an officer in numerous area clubs. Countless AMA members in upstate New York owe their introductions to aeromodeling to Daryl.

To commemorate Daryl's contributions to model aviation, the Flying Knights Model Aircraft Club and the Thundervolts RC Club purchased bricks on AMA's Walk of Fame. This tribute is fitting and a permanent way to remember members, friends, and loved ones.



The Flying Knights and Thundervolts Walk of Fame bricks in memory of Daryl Hull.



Bob Brown, Dave Mathewson, and Eric Williams with Daryl Hull's fun-fly model and Walk of Fame bricks.

Remember, it's not about what we fly, it's about the people and the friends we make. 🛩️

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District III—Ohio, Pennsylvania, West Virginia



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As you read this, flying season here in the east will be going full speed with plenty of events—competitive and non-competitive—every weekend.

One event that was held April 27-28, 2013, in Murrysville, Pennsylvania, was a glider competition. This was the first time the Murrysville Area Sailplane Society (MASS) had hosted a Soaring competition. The event CD was Will Lipscomb and this was an Eastern Soaring League (ESL)-approved event.

Duie Matenkosky, club president, reported that more than 28 contestants hailed from as far away as Newport, Rhode Island, Boston, and Kentucky for the ESL home opener. Hosting the event for the first time, MASS members shared their field and provided the necessary manpower to help make the event a success.



Duie Matenkosky, MASS president; Jeff Little, Gene Boyko MASS vice president; Tom Heron, MASS secretary/newsletter editor; Bill Marron and Dan Bartolomeo.

Saturday's weather was perfect—with bright sun and light winds. However, the air was quick, changing, and unforgiving

at times. Everyone fought hard for 10 rounds of 10 minutes to crown Josh Glaab as Saturday's winner.

Two rounds were completed Sunday before rain ended the day. The Murrysville club had been anticipating this event for many months and members were thrilled with the turnout and look forward to hosting this fun and exhilarating competition next year!

Thank you, MASS, for hosting a Soaring competition in the Pittsburgh area. I'm sure the word will spread about your event and next year will be bigger and better.



Will Lipscomb launching his Supra X. This is his own design, which he is manufacturing in Jeannette PA.



Contest Director Will Lipscomb congratulating Josh Glaab on his first-place win.



Jack Dubich launching Dave Reynold's Supra X, with Dan Bartolomeo timing.

By now you should have heard or read about the inaugural National Model Aviation Day. AMA is requesting that all clubs celebrate our great hobby/sport on Saturday, August, 17, 2013, and has teamed up with the Wounded Warrior Project (www.woundedwarriorproject.org) to promote this event.

AMA would like for all clubs hosting an event to collaborate with their local chapters of the Wounded Warrior Project and make a donation on the day of the event.

In District III, we have at least three clubs doing this. The Alliance Balsa Bees of Alliance, Ohio, Wally's Squadron of Summersville, West Virginia, and the Farview R/C Flyers of Hamburg, Pennsylvania, are actively promoting National Model Aviation Day and are making a monetary donation to the Wounded Warrior Project.

If you haven't made plans for this event, it's not too late. Visit www.modelaircraft.org/nmad.aspx and sign up. Let's celebrate the first-ever National Model Aviation Day and do something good for our veterans who have made sacrifices that allow us to enjoy our passion for model aviation.

If your club had an event that you would like mentioned in my monthly column, please submit a small write-up with details about the event and three to four good-quality digital photos of participants and club members who helped make the event a success. I cannot guarantee I will use everything I receive but I will do my best to promote the clubs and events in our district.

Go fly and have fun! 🛩️

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



Bliss Teague
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On October 6, 2012, the Sandhills Model Aircraft Club held its Third Annual Colonel Earl Dugan Memorial Fly-In at the club's field in Cameron, North Carolina. What a tremendous success!

The weather was fantastic and we had 26 registered pilots flying all types of airplanes, ranging from small electrics to turbines. Many brought several aircraft. There were more than 40 models in the pits. We had pilots from across North Carolina, and one of our past presidents, Raoul Trudell, came from Mississippi.

Several local hobby shops sponsored the event and provided outstanding raffle prizes. We can't thank our sponsors enough. They really helped make the event a memorable one.

There were two noontime 3-D demonstrations, one fixed wing and one helicopter. The fixed-wing 3-D demonstration was flown by Danny Allen, who wowed the crowd with his 100cc Yak 54 and some impressive flying. Kevin McGrady, from Charleston, South Carolina, put on a jaw-dropping 3-D helicopter demonstration. The event grows each year, and we had so much fun that we're already planning for 2013!



Raoul Trudell readies his 55cc Spacewalker for a flight.



Danny hovers his Yak 54 for the crowd during the noon demonstration.

After roughly three years of planning, Mid Atlantic World War I Dawn Patrol 2012 at last filled the skies over southeast Virginia. The inaugural event, hosted by the Tidewater Radio Control club (TRC) of Chesapeake, Virginia, was held October 4-7.

The airport's runways were open to World War I RC flying beside the Military Aviation Museum in Virginia Beach, Virginia. The museum provided indoor overnight storage between and under its WWI and WWII aircraft.

Some of the museum's aircraft were moved out of the hangar and parked near the RC area—a perfect backdrop for the event. A full-scale P-51 also did flybys in front of the flightline Saturday afternoon. This was an amazing venue!

There was a great pilot turnout (43) with their high-quality models. Many came from as far away as Texas, Georgia, North Carolina, Indiana, Ohio, and New York.

A pilots' briefing was held each morning, followed by the singing of the Star Spangled Banner.

Although there was on-site camping, most pilots stayed at area hotels. The Virginia Beach ocean resort area is only 25 minutes away.

Wind was an issue early in the week but the weather was great by Saturday. Two crossing runways and a large, open grass field in front of the flightlines made it possible to take off in any direction as the wind changed. Sunday's rainy forecast prompted some of the pilots to pack up Saturday night.

TRC members awarded trophies for Best in Show, Best Axis, and Best Allied aircraft. The awards were provided by Glenn Torrance Models. Other

supporters included Balsa USA, RTL Fasteners, and Debbies RC World. AMA's District IV was also represented at its welcome tent by AMA District IV Vice President Bliss Teague.

TRC volunteers kept the event running smoothly and provided food and drinks. The award ceremony and prize drawings were held Saturday evening, followed by a fried chicken dinner included in the pilots' landing fee. The evening concluded with a gathering of pilots around a fire pit.

All of the pilots had a great time flying, checking out the museum, and visiting with old and new friends. TRC looks forward to doing this again, bigger and better, in early October 2013. Check out www.flytrc.com for the latest information and early sign-up. 🛩️



AMA and vendor signs greet the pilots and visitors.



A great lineup of WWI Scale aircraft.



TRC's meeting shelter was used for Saturday's dinner.

Associate Vice Presidents: Josh Bunn, Zebulon NC; (919) 291-6374; josh@qualityplusautomotive.com; Randy Elliot, Radford VA; (540) 239-0645; r.elliott@us.xaloy.com; Hank Mausolf, Fredericksburg VA; (703) 517-9860; mausolfh@yahoo.com; John Kirchstein, Newark DE; (302) 731-2831; john@kirchstein.net; Jay Marsh, High Point NC; (336) 869-4844; jaymarsh@ama-d4.org; Richard "Rick" Moreland, Edgewater MD; (301) 261-7366; rmoreland1@verizon.net. **RC Contest Coordinator:** Andy Kane, 305 Natick Ct., Silver Spring MD 20905; (301) 785-3022; drcrceditor@aol.com. **FF and CL Contest Coordinator:** John Tate, 10 Hanbury Ave., Portsmouth VA 23702; (757) 399-5376; jtate22@cox.net. **Frequency/Safety Coordinator:** Bradford Booth Jr., Pleasant Garden NC; (336) 685-4064; bradfordbooth@gmail.com. **Webmaster:** Steve Moulton, Chesapeake VA; (757) 421-4545.

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



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Hello District V!

This month, I had help from associate vice presidents (AVPs) who attended the 12th Southeast Electric Flight Festival (SEFF), and provided great reports and pictures!

Dave Wenzel from Georgia sent this report in:

I attended SEFF on Friday and Saturday. *Wow!* This was my first SEFF, and it was amazing. There were all types of electric aircraft and flying styles. The number of registered pilots as of noon on Saturday was 365, and there were an estimated 1,100 spectators.

Matt Klos ran this year's event and there were some significant changes. One was to put all of the vendors along the flightlines. There were plenty of flightlines and they were set up by flying styles and the corresponding vendors were right there with them.

The noontime demos were impressive. The full-contact, full-throttle combat was insane. Of course, Mac Hodges made a terrific flight in his beautiful B-29. As I was leaving, I stopped to watch Mac's Cub doing some loops and stalls. It was a nice ending. This is a "must event" for every electric flier in the district! All pictures by Vern Horne.



much-needed information to dispel rumors of what we can do and where we can do it. If you have never visited, you are missing out on a great resource!

Don Wise sent this in:

The Lake Area Radio Kontrol Society (LARKS) put on a flying demonstration and static display at the SparkleBerry Country Fair on April 27 in Columbia, South Carolina. I ordered 200 FPG-9s for this event. I helped some with the gliders and answered questions when the club members were occupied. The club also had six simulators running, which were constantly used.



Please log onto AMA's website and review the services that your membership provides. AMA is the largest model aviation organization on the planet, yet most are not aware of all of the services and information available.

If you want to get the pulse of model aviation, read the minutes of the EC meetings and it will give you an idea of where we are. The Government Relations tab is full of relevant data and

Hope to see you soon! 🛩️

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District VI—Kentucky, Illinois, Indiana, Missouri



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National Model Aviation Day is

scheduled to take place on August 17. I hope your club will want to participate. AMA suggests that clubs have a fly-in or fun-fly, and invite the community to come out and try buddy-box flying

AMA also would like these events to raise money for the Wounded Warrior Project. In addition to being a fun event for your club, it is a great way to get involved in your community.

We need to do what we can to improve our relationships with our communities. Many clubs already do a great job with fundraising events for national and local charities, and with community involvement. Such events can go a long way toward helping keep flying sites.

We hope for local and national recognition for National Model Aviation Day, so get involved. Sign-up your club to participate if it hasn't already been registered at www.modelaircraft.org/nmad.aspx.

April was a busy month. It began with the Toledo R/C Expo. I enjoyed working at the AMA booth, speaking with many members, and seeing some familiar District VI members and many new ones.

I met Mitchell Baker, the District VI RC contest coordinator, along with several SIG officers. The month ended at the Executive Council meeting at AMA Headquarters in Muncie, Indiana.

The Southern Indiana Flying Eagles from Seymour, Indiana, recently had an indoor static display open to the public. Held at the Seymour Public Library, the event was a success and allowed the

public to see RC aircraft equipment and get stick time on an RC simulator.

It was advertised on the local radio station and in flyers, and the display drew a steady crowd all day. The library invited the group to use the central lobby display case this year to draw attention to the event. Local newspaper staff wrote an article about the club, expanding the coverage from a small paragraph to a full-page article, complete with photos.



Program of the Month: Leader Club Award. AMA recognizes clubs that are leaders in the hobby. This is not a difficult award to achieve and is recommended if your club intends to apply for a flying site improvement grant. There are six required activities.

1. AMA chartered club for a minimum of five years.
2. Club membership is open to all AMA members and is not limited to a certain number.

3. Club has developed and posted safety and operational rules at its flying site.
4. Club has filed a copy of safety and operational rules at AMA Headquarters.
5. Flying field has separate areas for fliers and spectators, clearly marked as such.
6. The AMA Safety Code is posted and visible at the club field.

There are additional electives for a club to qualify as a Gold, Silver, or Bronze Leader club. Nine are required for gold, six for silver, and three for bronze.

1. Club has implemented and enforces a frequency control plan that allows all 50 RC channels to be used at its club flying site where RC is allowed.
2. Club has implemented an AMA Adopt-A-School program or donates a *Model Aviation* magazine subscription to schools or libraries.
3. Club conducts a review of the AMA Safety Code at a club meeting at least once a year.
4. Club sponsors an annual public event, such as a mall show, flying show, or demonstration.
5. Club monitors noise levels and/or institutes club field rules, such as a requirement that models be operated at a maximum of 90 dB at 9 feet.
6. Club has created an informational handout and provides it to the general public.
7. Club participates in charity programs or public fundraising events.
8. Club has a formal lease or agreement for use of its flying site or owns its site.
9. Club participates in the AMA Introductory Pilot Program or has its own instruction program.

Additional information and the application can be found on the AMA's website at www.modelaircraft.org/files/708.pdf. Celebrating National Model Aviation Day will cover at least one elective.

Happy flying! 🛩️

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District VIII—Arkansas, Louisiana, New Mexico, Oklahoma, Texas



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Last month we were in the middle of proposed state legislation in Texas, Oklahoma, New Mexico, and Arkansas. Of those bills, only the one in Texas is still moving forward. The other states have finished their legislative sessions for the spring and will not return until the fall.

We have been lucky that these bills have not limited our ability to operate our models. But we are our own worst enemy in that regard. Someone from the hobby will likely do something that attracts the national spotlight again.

Please spread the message that we as aeromodelers should be careful of how we represent ourselves in the news and in online postings. All of our reputations could be jeopardized if we are not vigilant.

I attended the Austin Heli Fest April 5-7. The event garnered 101 pilots. The 100th pilot was an older gentleman named Lloyd who was working the event for the club. When they hit 99 pilots, he signed up to be the 100th.

Joe Doran was the CD and did an outstanding job. Everyone learned something new and what he or she could do better next time around.

The event had many sponsors. Gaii's team and well-known pilot Curtis Youngblood, conducted demonstrations. Several hobby dealers were there selling goods.

The Austin, Texas, club has a nice field and we met many nice people. One thing to note about this event is that if you are having problems with

something, someone is always there to help. A group I know from the Abilene RC Society came and we set up next to them for the weekend. We had a great time and hope to make it back next year.

The last event on Saturday was drag racing. And with the event done, some backward inverted drags were in order. If you have the *Model Aviation* app you can see them.



Ray and Luis from the Abilene RC Society had fun and helped those in need. Thanks, Ray and Luis!



Joe Doran receiving a Making a Difference award.

April 20-21 I visited members of the Triple D RC Club of Dumas, Texas, and went to the club's fun-fly. The event attracted 37 pilots and the weather was outstanding. I was amazed that the wind did not blow while I was there.

Cliff Town was the CD and did a great job. He also serves as an associate vice president for the Texas Panhandle. I saw many members of the Amarillo club and it was good to see them again. Cliff had several events for everyone to try throughout the weekend.

All of the events had good participation. Johnny Cavitt won the Top Gun Trophy and Cliff gave a Making a Difference Award to Terry

Widick and Tim Trayler for the hard work they do for the hobby and the club.



Johnny Cavitt holds the coveted Top Gun Trophy.



(From left) Terry Widick, Mark Johnston, Cliff Town, and Tim Trayler. Tim and Terry received Making a Difference awards.



The entire group at the field. Thanks to all!



Chase Lee getting help from Gail Nash.

Hope to see you all at the field! 🛩️

Associate Vice Presidents: Bill Holland, Edmond OK; (405) 562-1327; Jim D Marshall, Alton TX; (956) 984-9474; Jon Martin, Rayne LA; (337) 783-2759; Jack Matlock, Live Oak TX; (210) 413-4846; Brian Regan, Albuquerque NM; (505) 872-2661; brain23@centurylink.net; Randy Ritch, Magnolia TX; (281) 701-3121; Bobby Smith, White Oak TX; (903) 759-1905; smith4911@att.net; Doug Staines, Belton TX; (254) 780-3512; Ron Stanfield, Maumelle AR; (501) 851-1697; Cliff Town, Dumas TX; (806) 935-3063; town_cliff@hotmail.com; Pat Willcox, Kingwood TX; (281) 358-1750. **Frequency Coordinator:** Gene Kent, Tomball TX; (281) 255-4805. **AVP for Safety:** Jim Rice, San Antonio TX; (210) 657-6604; district8safety@satx.rr.com. **RC Contest Coordinator:** Douglas E. Powell, Wichita Falls TX; (940) 691-8348; chief2@sbcglobal.net. **CL/FF Contest Coordinator:** Bill Lee, Chandler TX; (903) 852-5599; Bill@wrlee.com. **AMA Display Coordinator:** David Johns, Deer Park TX; (281) 476-4820.

District IX—Colorado, Kansas, Nebraska, North Dakota, South Dakota, Wyoming



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When I hear the term float-fly in District IX, I immediately think of Darrell Watts who is one of our avid water aviators from the Kansas area. Darrell doesn't limit his activities to Kansas. He helps promote float-flies in surrounding states as well. He has also been helping Pat McGhee on the Heart of America Float Fly.



The Polaris in action.

Darrell has been working on a new, 10-foot wingspan Widgeon and its maiden voyage is imminent if it has not already happened. Darrell gives use some insider information about one of the most popular models in his area. It is the Model Aero Polaris, which has the reputation of being one of the most easy-to-fly, predictable aircraft to touch down on water. It is not uncommon to see 16 or more of them at the float-fly.

Denver is fortunate to have a great facility such as the Wings Over the Rockies Air and Space Museum located in our area. The facility houses a large number of full-scale aircraft, some models, and displays relating to space



Proud kindergarten students from Colorado Springs show off their new aircraft.

exploration. The museum's mission statement is "To educate and inspire people of all ages about aviation and space endeavors of the past, present, and future."



AVP Tom Neff, who is partnering with the Wings Over the Rockies Air and Space Museum.

The aeromodeling community gives a presentation and has static displays in this facility every year. Tom Neff, your District IX associate vice president (AVP), has arranged to initiate a new program in partnership with the museum. The district has made a cash donation to assist a program for teaching youngsters and others to fly RC aircraft. Tom will assist with instruction.

For the past six years, the Pikes Peak Soaring Society (PPSS) has sponsored a Delta Dart building session, held once a week during the summer camping season of the Denver Area Council of the Boy Scouts. The camp on the Boy Scouts Ranch in Elbert, Colorado, is typically seven weeks and is held in June and July. District IX will assist the club this year in helping with the program to promote youth educational activities.

Tom Neff has strong desire to develop young fliers and is a great teacher. He took on the task of giving a kindergarten class lessons in building the AMA FPG-9 plate glider. The kids had a great time and we hope we planted seeds for a future generation of AMA members. ✈️



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District X—Arizona, California, Guam, Hawaii, Nevada, Utah



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I recently was invited to two multirotor events in our district. The first was held at the Palomar R/C Flyers field in Fallbrook, California. The inaugural Multirotor Challenge was organized by Innovative Designs (www.innov8tivedesigns.com). This was a large event with 52 participants and twice as many spectators. Vendors were out in force, showing off the latest equipment for multirotor aeromodeling.

The weekend event was a combination of fun-fly and competition. The models ranged from three, four, five, six, and even eight-motored aircraft. Most had a central body holding the receiver, batteries, speed control, GPS, and camera, with a series of trusses radiating from the central body at the end of which motors and fixed pitch propellers were attached.

The competitions included weight lifting, Pylon Racing, an obstacle course, and a return-to-launch-point contest to see whose GPS and autopilot were the most accurate.

The pilots were excited about this new form of aeromodeling and the technological innovations that come with it. Most of them began modeling with traditional helicopters and fixed-wing aircraft, but there were some who began their modeling with multirotor aircraft.

Two memorable participants were Techinstein and Lucidity, aka Brian Zvoigzne and Patrick Sherman, from the Roswell Flight Test Crew. You can learn more about them at www.roswellflighttestcrew.com.

Their motto is *semper cadentes*, which translates to, “always crashing.” They have a light-hearted take on the trials and tribulations of getting a complex model and its flight systems to work together.

The second event was held at the F3B Soaring Association’s field in Fremont, California. Dave Vrutta from Ready Made RC (www.readymaderc.com) organized this event. This event was a combination of a fun-fly and competition.

The two competitions offered were a gate race and an old-fashioned drag race. For the gate race, models had to fly through a series of rectangular gates approximately 5 feet high and 8 feet wide. I watched through a set of special goggles as a pilot flew the course. The goggles displayed an image from the model’s on-board camera, providing a real-time, bird’s-eye view of the event.

If multirotor and fixed-wing FPV models are operated in accordance with AMA Document 550—First Person View (FPV) Operations, and AMA Document 560—RC Operation Utilizing Failsafe, Stabilization, and Autopilot Systems, these new advances in our sport should be welcomed and integrated into our clubs. If someone brings one to the field, have a look at it. I think you’ll be impressed by the technology and the modelers’ enthusiasm for this emerging sector of our sport.

Please go to our district website (www.ama10.org) where you’ll find additional photos to go with this story and some beautiful videos.



Dave and Rick Vrutta from Ready Made RC.



Patrick Sherman and Brian Zvoigzne: the Roswell Flight Test Crew.



We have all heard the term “when pigs fly.” Well Jason Anderson built himself a flying pig.



This quad is participating in the heavy lift competition.



Antonio Lopez pilots his quad at the Multirotor Challenge.

Until next month, may you have nothing but happy landings. 🛩️

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District XI—Alaska, Idaho, Montana, Oregon, Washington



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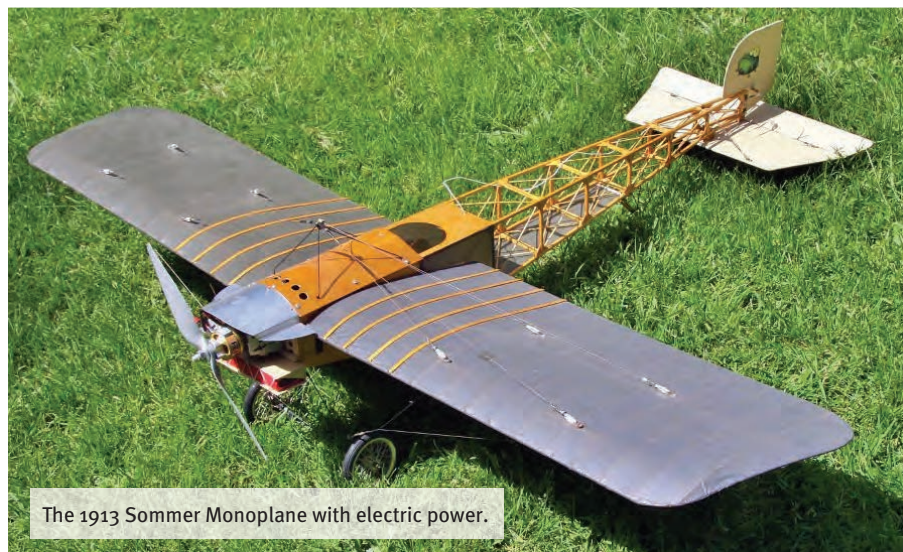
A local club to which I belong has an event called Builder's Night at its April membership meeting each year. I have been an active participant for many years and I do not do this simply to kill time—I do it to *win!*

This year, I brought in my freshly finished Mini Antic. I was optimistic about my chances until Leonard Good brought in his model of a 1913 French Sommer Monoplane, complete with operational wing warping. I knew I was in trouble.

Not only was the model well built, it featured technology not often seen in a



Leonard Good with his Sommer Monoplane.



The 1913 Sommer Monoplane with electric power.

model. The airplane is relatively heavy, approximately 7 pounds, has a 3S2300 LiPo battery setting as far forward as possible, and has a 46-inch wingspan covered with an iron-on covering that is sufficiently loose to accommodate the wing warping.

Wing warping is accomplished by using one servo and several pulleys and bellcranks. The model was built from plans from *AeroModeller* magazine. Such innovation is often seen in models dreamed up by Leonard. He is a retired school teacher, a model builder, and introduced model aviation to many, many of his students throughout the years.

The hardest part of this contest is the long-standing rule that the model must never have been flown. I don't know about you, but when I complete a model I want to know if it will fly and I want to know it *now*. No one ever said that life was easy!

I am on the committee that awards grants to clubs wanting to improve their flying facilities.

There is a specific budget for this each year and the amount of the grant can be up to 10% of the total project cost.

The word is out, so there are more applicants than money. Who wins? The answer is the club with the most-deserving project as evidenced by a well-prepared request that is submitted on time. The description of the project and its benefits must be clear, actual costs must be documented by receipts, and estimated costs must be backed up by an estimate from a recognized source.

Some committee members want to see evidence that there is or has been club labor used to advance the project. Site grants are no different than any other request for funding that I know of; you have to clearly state your case. Let's get busy and see more of this money in District XI!

Leader Member is the highest level of membership within the AMA. The goal is to have at least one in every club. This member is the go-to person when someone is seeking assistance or information. Does your club have a Leader Member? Does your club have individuals whom you think should be Leader Members? Information on how to become one is on the AMA website (www.modelaircraft.org) or you can contact me or your nearest associate vice president for help. 🛩️

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AMA Membership Enrollment Form



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Mr. Mrs. Ms. New Membership Renewing Member (provide AMA number if known) _____

First Name _____ Initial _____ Last Name _____

Mailing Address (number and street) _____ Apt. # _____

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E-mail has provided AMA with the opportunity to get information to our members in a timely cost-effective manner. AMA on occasion partners with reputable firms to promote products that will benefit both the member and the association. AMA does not trade or sell e-mail or mailing addresses.

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MEMBERSHIP CATEGORIES * All membership categories receive full membership, liability and accident/medical insurance, and competitive privileges
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OPEN Membership **\$58.00** Model Aviation included.

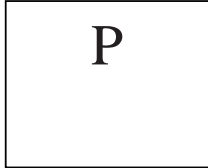
NEW OPEN Members – New AMA members joining during these periods will receive a prorated membership price.

April 1st through June 30th **\$43.50** July 1st through September 14th **\$29.00**

OPEN Senior Membership \$48.00 Model Aviation included. (For those 65 or over by July 1, 2013).

NEW OPEN Senior Members – New AMA members joining during these periods will receive a prorated membership price.

April 1st through June 30th **\$36.00** July 1st through September 14th **\$24.00**



EXTRA Family Membership **\$30.00** Model Aviation not included. (Applies to any one adult who resides in the same household as a current OPEN member.) List current OPEN member's name and AMA number. Name _____ AMA# _____

PARK PILOT PROGRAM* **\$29.95** Park Pilot magazine included. **Aircraft must not exceed 2 pounds, 60 mph, and may not be powered with an internal combustion engine. * Does not have voting rights, cannot compete in competitions, and has reduced liability insurance and no fire, theft, or accident/medical insurance.

Park Pilot members can subscribe to Model Aviation magazine - **\$36.00**

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Note: For competition purposes, YOUTH will be categorized as Junior (under 15 by July 1) or Senior (Those 15 by July 1 but not 19)

FREE YOUTH Membership Add Model Aviation magazine subscription. One-year \$15.00 Add Park Pilot magazine subscription. One-year \$9.95

Add Model Aviation and Park Pilot magazine subscription. One-year \$19.95

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Name of National Aero Club _____ Expiration Date _____

AFFILIATE MAGAZINE SUBSCRIPTION add **\$60.00** for a total of **\$88.00**.

Recruiter Information: If you were recruited to join AMA by a member, AMA Club, or hobby shop, please indicate only one and list the name and AMA number (if known) so we can thank them.

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Note: This waiver means that if I am involved in any claim or suit I will not sue the AMA, Inc. I understand that this waiver does not affect my liability insurance coverage.

"I agree to comply with the AMA Safety Code for all applicable model operations. I understand that my failure to comply with the Safety Code may endanger my liability coverage for any damages or claims so caused. I further understand that written notice of the occurrence of any incident must be immediately provided."

"I am aware that modeling may present hazards to participants and spectators. I exempt, waive, and relieve the Academy of Model Aeronautics, Incorporated (AMA) from all current or future liability for personal injury, property damage, or wrongful death caused by negligence."

Signature of Enrollee _____

Parent or Guardian of Enrollee under age 18 must also sign _____

Membership ends each year on December 31, regardless of the date a membership form is received. All membership benefits begin on the day of receipt at AMA Headquarters of a properly completed form and correct dues payment. 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; it expires with the issue printed in December (which is dated January of the following year). Membership rates and insurance limits are those in effect at the time of printing. Actual cost of dues and amount of insurance coverage is subject to change. Any such changes will be noted at the time of membership processing so they may be accepted or not. Forms received after September 15 will be valid for the remainder of that year and all of the following year.

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FLYING JUNE

PA - Pennsylvania

6/29/2013 -- West Sunbury, PA (D) B.A.M.S AIRSHOW 2013. Site: Club Field. Mark Diulus CD PH: 412-687-2386 Email: markshobby@aol.com. Visit: www.thebam.net. The 3rd Annual B.A.M.S Airshow will be held on Saturday June 29th at the B.A.M.S field in West Sunbury, PA just miles north of Butler PA. Please join us for the regions Premier RC Event. Full Scale Demos, Turbines and Giant Scale. Gates open at 9AM. Proceeds benefit the Wounded Warrior Project. This event is presented as an Airshow with only invited pilots performing the event. Sponsor: BUTLER AIRCRAFT MODELERS ASSOC.



JULY

AK - Alaska

7/6/2013 - 7/7/2013 -- Fairbanks, AK (AA) 23RD ANNUAL WATER N WHEELS. Site: MSRC Memorial Field. Michael Davis CD PH: 907-451-7472 Email: mike.davis@dcsol.com. Visit: www.midnightsunrc.org. 2 days of IMAC, camping at the field Sponsor: MIDNIGHT SUN RC INC

CA - California

7/7/2013 -- Lake Balboa, CA (C) VF FUN FLY AND VCB TEACH FLY CL. Site: Apollo X1 Field. Robert Smith CD PH: 661-298-2614 Email: flynbs@socal.rr.com. Visit: www.valleyflyers.com. Free VF members fun fly and swap meet! VCB teach and learn C/L. Clear out your closets and sell or trade your unneeded aircraft item. Join the VCB for free control line lessons. Sponsor: SAN FERNANDO VALLEY RC FLYERS, INC

7/7/2013 - 7/14/2013 -- Davis, CA (C) WINGS OF VICTORY. Site: Woodland Flying Site. Lamont Welch CD PH: 707/446-7333 Email: loon12@aol.com. Visit: WWW.WDARC.ORG. Any appropriately painted warbird, 600x60 Geotec runway. (Prevents runway rash) unlimited flying area, large covered pit area, RV parking, no hook ups. Snack shack, Landing fee \$35. Sponsor: WOODLAND/DAVIS AEROMODELERS

7/13/2013 -- Lancaster, CA (C) AUTI SUMMER CLASSIC. Site: Somoski Park. Anthony Frackowiak CD PH: 661.992.1529 Email: frackowiak@sbcglobal.net. Visit: www.aui.org. Classic pattern events Sponsor: ANTELOPE VALLEY TAILWINDS INC

7/13/2013 -- Livermore, CA (C) WARBIRD FUN FLY. Site: EBRC Field. Robert Donleavy CD PH: 925/829-5549 Email: rcerbob@comcast.net. Visit: www.eastbayrc.org. Field is Electric power only. Sponsor: EAST BAY RADIO CONTROLLERS

7/13/2013 -- Rocklin, CA (C) PRESIDENTS FUN FLY. Site: Club Field. John Hainlen CD PH: 916.390-2174 Email: johnhain@aol.com. Visit: www.amosrc.com. Fun fly open to any AMOS club member or any other club member with a AMA card. Food available for purchase. Free to AMOS members. Various fun events to be determined. Sponsor: ASSOC MODELERS OF SACRAMENTO AMOS

7/13/2013 - 7/14/2013 -- San Diego, CA (C) ROTORS OVER MIRAMAR HELICOPTER FUN FLY. Site: Mcas Miramar Base. Mark Lukens CD PH: 858-484-2929 Email: malukens@yahoo.com. Visit: www.miramarrcflyers.com. The 5th Rotors over Miramar Helicopter fun fly event is open to all AMA members. Fly at one of California's premier flying sites and see demo flights by top pilots. Sponsor: MIRAMAR RADIO CONTROL FLYERS

7/20/2013 - 7/21/2013 -- Camarillo, CA (AA) CAMARILLO IMAC AND FREESTYLE RED SHOE CLASSIC. Site: Channel Islands Condors. Paul Stringer CD PH: 805.659.0075 Email: micelasa@yahoo.com. Visit: cicondors.com/index.html. Events 411-414 (JSO) Sponsor: CHANNEL ISLANDS CONDORS

7/20/2013 -- Lake Balboa, CA (C) LA JETS SUMMER 1 DAY. Site: Apollo X1 Field. Robert Smith CD PH: 661-298-2614 Email: flynbs@socal.rr.com. Visit: www.valleyflyers.com. Interested in jets? Come to the LA jets summer 1 day and see what it is all about! Sell all types of jet aircraft and ducted fan aircraft. Sponsor: SAN FERNANDO VALLEY RC FLYERS, INC

7/20/2013 -- Union City, CA (C) WARBIRDS BY THE BAY. Site: Lou Haynie Memorial Field. Jeffrey Whitney CD PH: 510/537-0141 Email: jeff.whitney@sbcglobal.net. Visit: www.rcpilot.com. All era warbirds (sorry, no turbines)- gas, glow and electric. Proceeds benefit the Viola Blythe foundation. Sponsor: SO ALA CNTY RADIO CONTROLLERS INC

7/21/2013 -- Azusa, CA (A) SC2 JULY MONTHLY CONTEST SPONSORED BY HSS. Site: Fish Canyon SWSA Field. James Sonnenmeier CD PH: 814/490-9957 Email: jrs36psu@gmail.com. Visit: www.1hss.org. Southern California Soaring Clubs (SC2) July monthly contest. Sponsored by Harbor Soaring Society. Three rounds precision duration for Open, RES, 2m, Woody and ALES. Held at SWSA Fish Canyon field Azusa, CA. Trophies to third place. Sponsor: HARBOR SOARING SOCIETY

7/23/2013 -- Lake Balboa, CA (C) VF CLUB MEETING AT THE FIELD. Site: Apollo X1 Field. Robert Smith CD PH: 661-298-2614 Email: flynbs@socal.rr.com. Visit: www.valleyflyers.com. Come to Apollo x1 field for the monthly meeting @ 730pm. Come early and get in some stick time before the meeting. As always, bring a couple of the extra dollars for refreshments and the club raffle. Sponsor: SAN FERNANDO VALLEY RC FLYERS, INC

7/26/2013 - 7/28/2013 -- Santa Maria, CA (C-Restricted) FIRST ANNUAL CENTRAL COAST GIANT SCALE FLY IN. Site: Elks Unocal Event Center. Charles Barnes CD PH: 805-886-7921 Email: cdbarnes10@comcast.net. Visit: trivalleyrcmodelers.com. IMAA legal planes only until 5pm. Open flying after 5pm; night flying ok (Electric only). \$30 landing fee includes parking; free dry camping. Santa Maria style Tri-tip dinner Sat eve. (Pre sales at registration) Sponsor: TRI VALLEY RC MODELERS

CO - Colorado

7/12/2013 - 7/14/2013 -- Denver, CO (AAA) MMM FAI ANNUAL. Site: Mmm Lowry Field. Marc Sisk CD PH: 719-433-2115 Email: msisk916@comcast.net. Visit: www.themmmclub.com. FAI World Cup and America's Cup sanctioned. NFFS National Cup event. Five rounds of F1E and F1E Jr on Fri. Seven rounds each day, Sat and Sun, for F1A, F1B, F1C, F1P and F1Q, F1A Jr, F1B Jr, F1P Jr. Four rounds each day, Sat and Sun for F1G, F1H, F1J. Sponsor: MAGNIFICENT MOUNTAIN MEN INC

7/13/2013 - 7/14/2013 -- Brighton, CO (AA) PRAIRIE DOG PATTERN CLASSIC. Site: Fisher Field. Lawrence Ott CD PH: 303.406.1348 Email: lott6@comcast.net. Visit: www.miitruereporters.org. Join us for our 1st Annual Prairie Dog Pattern Classic in the Denver area. Lunch available at the field both days. We allow overnight camping at the field but there are no hook ups. Sponsor: MINIATURE AERO SPORTSTERS

7/28/2013 -- Denver, CO (AMA record Trial) MMM MONTHLY SCRAMBLE. Site: Mmm Field. Jerry Murphy CD PH: 719/685-3766 Email: jb_murphy@msn.com. Visit: www.themmmclub.com. Come and enjoy flying under the azure Colorado sky on the largest flying field in the USA. The field is South of DIA airport with views of the mountains and Denver skyline. Many hotels are close by. Event is NFFS National Cup sanctioned. Sponsor: MAGNIFICENT MOUNTAIN MEN INC

CT - Connecticut

7/7/2013 -- Ellington, CT (C) DAWN PATROL OVER GREEN ROAD SECTOR. Site: Ncrrc Club Field. Robert Boulais CD PH: 860-872-7900 Email: dawnpatrol1536@juno.com. Visit: www.ncrrc.org. Giant scale WWI event, IMAA membership not required. Come early, camp and fly for the weekend - Sunday event. Fun, food, raffles and shirts available. Prizes for participation. Biplanes 60" or more and monoplanes 80" or more. No Cubs. Sponsor: NORTHERN CT RADIO CONTROL CLUB

7/27/2013 - 7/28/2013 -- Woodstock, CT (C) WARBIRDS OVER WOODSTOCK. Site: Woodstock Airport. Bruce Fortin CD PH: 860.923-3333 Email: bfflyer@gmail.com. General warbird fly in. Military aircraft of any size welcome. Food on site. Campers and or tents welcome (no hook ups). Sponsor: WOODSTOCK RC FLYERS

7/28/2013 -- Rocky Hill, CT (AA) SAM 7 JULY OT FF RALLY. Site: Bean Farm. Lawrence Pelatowski CD PH: 203.735.1954 Email: larrynfs@aol.com. OT & Antiq Gas. .02 Rep, NFFS Nos Gas, Rubr Stk, Rubr Cab, Scale, Twin Push, Baby rug, Jim Allen, OT Cat, Skokie M/L, NFFS ct towl, 1/2 A EarlyNos, a Natl Cup Event. Sponsor: SAM 7

DE - Delaware

7/10/2013 - 7/14/2013 -- Kirkwood, DE (C-Restricted) WARBIRDS OVER DELAWARE. Site: Lums Pond State Park. David Malchione CD PH: 610/357-6649 Email: bvmjpo6@aol.com. Visit: delawarerc.org. LF \$35 includes park fee and dinner. Reg. 8AM, fly 9AM. RV (park fee for overnight) 150x900. Food and beverages Fri thru Sun. Limited to GS Military aircraft in military paint scheme. Located: Lums Pond State Park. Go 6.2 miles to Rt 71, make left, the field is on the left. Contact Dave. Sponsor: DELAWARE RC CLUB

FL - Florida

7/4/2013 -- Jacksonville, FL (C-Restricted) GATEWAY 4TH OF JULY FAMILY PICNIC AND FUN FLY. Site: Lannie Rd Air Park. Thomas Hembly CD PH: 904.266.2341 Email: thembly@att.net. Sponsor: GATEWAY RC CLUB

GA - Georgia

7/13/2013 -- Dunwoody, GA (A) JULY INDOOR. Site: St Lukes Presbyterian Church. William Gowen CD PH: 404-636-3451 Email: wdgowen@gmail.com. Visit: www.thermalthumbers.com. Sponsor: THERMAL THUMBERS OF METRO ATLANTA

7/13/2013 -- Gray, GA (C) DIXIE AEROMASTERS SUMMER FLY IN. Site: Commissioners Field. Douglas Gerdes CD PH: 478-743-7950 Email: dgrdes@cox.net. Visit: www.dixieaeromasters.com. Sponsor: DIXIE AEROMASTERS INC

7/20/2013 - 7/21/2013 -- Douglasville, GA (C) HOTLANTA SPA PATTERN CONTEST. Site: Dema Field. Danny Dougherty CD PH: 770-943-6776 Email: globarlc@mindspring.com. Sponsor: DOUGLAS COUNTY AERO MODELERS

7/21/2013 -- Whitesburg, GA (A) PEACH STATE CHAMPS. Site: Ng Turf 1487 Black Dirt Rd. Charles Russell CD PH: 404-444-9796 Email: chasrusell@peoplepc.com. Visit: www.thermalthumbers.com. Sponsor: THERMAL THUMBERS OF METRO ATLANTA

IA - Iowa

7/14/2013 -- Lake Mills, IA (C) JULY JUBILEE FLY IN. Site: Lake Hills Airport. Delane Behr CD PH: 641-592-4195 Airport is located 1 mile East of care center on South 10th Ave. Flying from 10AM-4PM. All sizes of sirlplanes and helicopters welcome. No contests just fun. Great food.

7/20/2013 -- Marion, IA (C) WARBIRDS OVER IOWA. Site: Skyhawks Field. Todd Davis CD PH: 819-295-7311 Email: tjDavis@rockwellcollins.com. Visit: www.crskyhawks.org. 10th Annual event. 5007'00. Hard strake runway, on site refreshments. Great fellowship and lots of flying. \$10 flying fee, Spectators free. Proceeds benefit Eastern Iowa Honor flight. Special awards for best flight, best scale, best WWII and pilots choice. Aircraft must be warbird replicas, no park flyers. Times may be reserved for special events. Sponsor: CEDAR RAPIDS SKYHAWKS, INC

ID - Idaho

7/6/2013 -- Pocatello, ID (A) FUJBALL OVER GIESLER FIELD. Site: Pocatello. Rick Kent CD PH: 208.681-9641 6 rounds each Open B and 2610 Scale combat. 1st round 10AM. Pilot meeting 930AM. Lunch provided. Bring your own hard hat. \$20 entry 1 class. \$30 for both. Sponsor: EASTERN IDAHO AEROMODELERS

7/19/2013 - 7/21/2013 -- Athol, ID (C-Restricted) BIG BRUN FUN FLY. Site: Bruner Bunko Exit Hwy 95 N. Tim McGee CD PH: 208.683.3213 Email: tims73@msn.com. Sponsor: SILVERHILLS R/C FLYERS

7/25/2013 - 7/27/2013 -- Athol, ID (C) ATHOL PROBBRO. Site: Farragut Flyers Field. Alan Puckett CD PH: 208.818.1396 Email: alanpuckett@hotmail.com. Everyone welcome. 3 days of open flying. Sponsor: FARRAGUT FLYERS

IL - Illinois

7/7/2013 -- Palos Hills, IL (C) PALOS RC SCALE AIR SHOW. Site: Club Field. Anthony Mataitis CD PH: 708.301.4878 Email: bulkheadm@comcast.net. Visit: palosrc.com. Come join us for a day of friendly and casual flying. No landing fee! Only 2 requirements: Must have a current AMA membership card. Aircraft must be "Scale" RC Models. (Any AMA legal size, any power type) 9am-3:30pm. Pilot raffle at end of day. Sponsor: PALOS RC FLYING CLUB

7/13/2013 -- Moline, IL (C) QC WHIRLYBIRDS FUN FLY. Site: Skyriders Field. Rockne Brosman CD PH: 309.269.2023 Email: rbrosman@hotmail.com. Visit: www.qcrcw.com. 11th Annual Heli fun fly! \$20 landing fee includes pilot lunch, dinner, open flying all day. Sponsor: QUAD CITIES RC WHIRLYBIRDS

7/13/2013 -- Ottawa, IL (C) BOB BOND MEMORIAL FLYING FLY. Site: Ottawa II. Randall Bond CD PH: 815/677-1689 Visit: www.streatorrcflyers.com. Come join us for a day of water flying. Sheltered from main Illinois river. Good launching area with flight station area. Boat retreat available. Lunch available on site. No landing fees. Sponsor: STREATOR RC FLYERS

7/13/2013 - 7/14/2013 -- Pawnee, IL (C) LINCOLN LAND IMAC CHALLENGE. Site: Dave Holmes Air Strip. Harry Scheldt CD PH: 217-438-9858 Email: hscheldt812@gmail.com. Visit: www.sangamonvalley/cfiyers.com. IMAC members \$25, non members \$35. Refreshments/ camping available, no hook ups. Camp grounds and motels nearby. Field available for practice on Friday. Sponsor: SANGAMON VALLEY RC FLYERS

7/20/2013 - 7/21/2013 -- St Charles, IL (C) FESTIVAL OF FLIGHT. Site: Club Field. Armin Weber CD PH: 630/236-5161 Email: aweberp47@gmail.com. Visit: www.foxvalleyaero.com. Annual Festival of flight- 2 days of open flying/ Open to all types of aircraft. Storage text with security and charging facilities. 800x 50ft paved runway. Noon airshow. Food concessions. Primitive camping. No landing fee. Sponsor: FOX VALLEY AERO CLUB

IN - Indiana

7/12/2013 - 7/13/2013 -- Lafayette, IN (C) HELI RUMBLE. Site: Mcalliste Park. Jack Brewer CD PH: 765-838-8778 Email: jobair3@frontier.com. \$15 landing fee, food available, restrooms, 50-50 raffle 10am til 11. Model stall raffle. Sat night dinner is included with registration. Sponsor: LAFAYETTE CLOUD JOCKEYS

7/20/2013 -- Edinburg, IN (C) 7TH ANNUAL BOYD HELSTROM WARBIRD FLY. Site: Tracee Field. Brian Cassidy CD PH: 317-834-0976 Email: briancassidy@hotmail.com. Visit: jrcrc.net. Must be AMA member. \$10 landing fee, includes lunch. Accession stand, free camping-no hook ups, for RV primitive. Restrooms with running water. Raffles prizes. 58x 467 paved runways. 50x600 grass runway. Sponsor: JOHNSON COUNTY RC FLYERS

7/20/2013 -- Wheeler, IN (C) WARBIRDS DAY. Site: Rainford Field. Stanley Zolodz CD PH: 219.662.1199 Email: szj002@hotmail.com. Visit: midwestsundowners.com. Any size model of a Military Aircraft in Military colors. Pilots meeting at 930AM. AMA required. Food on site. No landing fee. Sponsor: MIDWEST SUNDOWNER FLYING CLUB

KS - Kansas

7/20/2013 -- Wichita, KS (C-Restricted) SOD BUSTER JUMBO FUN FLY. Site: 119th Ridge Rd. John Newman CD PH: 316-267-2797 Visit: www.chisholmtrailrc.com. 119th and Ridge Rd. South 1/2 mile West on 119th Countyline. Sponsor: CHISHOLM TRAIL RADIO CONTROL CLUB

KY - Kentucky

7/7/2013 - 7/14/2013 -- Lebanon, KY (C) JETS OVER KENTUCKY WEEK. Site: Lebanon Springfield Airport. Lewis Patton CD PH: 502/429-6365 Email: lewisisthegeneral@hotmail.com. Visit: visitlebanonky.com. Spend a fun filled week at Jets over Kentucky week. "The Worlds Grandest Jets Event" will be better than ever! Flying each day from 8am until dark. 5000ft of runway and 3 40x200 Big Tops, highlight of our event, dont miss it!

7/25/2013 - 7/28/2013 -- Bowling Green, KY (C) BOWLING GREEN EXTREME 3D FLY IN. Site: Stahl Field. Dennis Baack CD PH: 270-791-8299 Email: dennisd@dstoysoyrc.com. Visit: taildragger.com. Bowling Green Extreme 3D Fly-In July 25. RV hook up. Field open to early arrivals. Sponsor: SOUTHERN KY MODEL AERO CLUB SKYMAC

MA - Massachusetts

7/20/2013 - 7/21/2013 -- Newbury, MA (C) PLUM ISLAND AERODROME RC FLY IN. Site: Plum Island Airport. Donald Dodier CD PH: 603.926.2003 Email: dondodier@comcast.net. 10am-4pm. 24 Plum Island Turnpike. Paved runway. Pilot fee \$10 per day \$15 for both days, registration begins at 9am. Food concessions provided by Plum Island Aerodrome. 50/50 Raffle one each day. Open to Spectators and pilots. Sponsor: NORTHEAST R/C MODEL CLUB

7/27/2013 -- Sudbury, MA (C) CRRR 2013 RES COMBAT. Site: Davis Field. Alan Marshall CD PH: 508.877.5964 Email: acm@ultranet.com. Visit: www.charlesriverrc.org. Pilots meeting at 9am. We will run Expert and Sportsman classes. Sponsor: CHARLES RIVER RCERS

7/28/2013 -- Halifax, MA (C) WINGBUSTER SUMMER CLASSIC. Site: Club Field. Neil Simpson CD PH: 508-867-8702 Email: podunk129@charter.net. Formula GX combat is speed limit control line combat. Call for rules. Sponsor: WINGBUSTERS MAC

7/28/2013 -- Holden, MA (C) QUINAPOXET ANNUAL AIR SHOW. Site: Holden Land Fill. Colin Toveron CD PH: 978.779.9860 Email: crtmac@verizon.net. Visit: www.qmfc.org. All AMA members welcome. No overnight, no hook ups. No jets. Sponsor: QUINAPOXET MODEL FLYING CLUB

CT - Connecticut

8/24/2013 -- Rockyhill, CT (AA) SAM 7 EAST COAST CHAMPS. Site: Bean Farm. Douglas Macdonald CD PH: 860-693-3272 Email: lorraine.macdonald@sbcglobal.net. Sm Rubr Stk, Lg Rubr cabin, Fly Scale, jim Allen. Twn push M/L, Skokie M/L, NFFS cl Towl, 1/2 Early Nost, 1/4 8/1/2 A Nost Gas, a Nat'l cup event. Sponsor: SAM 7

8/25/2013 -- East Hampton, CT (C) SALMON RIVER SHOOT OUT. Site: Salmon River State Forest. Neil Simpson CD PH: 508-867-8702 Email: podunk129@charter.net. Formula GX control line combat. Call for rules.

8/25/2013 -- Rocky Hill, CT (AA) SAM 7 EAST COAST CHAMPS. Site: Bean Farms. John Hodgkin CD PH: 860-379-2197 Email: jhodgkin2197@charter.net. Lb Rubr Stk, Sm Rubr Cabin, Baby ROG M/L, Nost Rub M/L, OT Cat, OT Towl, ABC Nost Gas, .02 Replica a Nat'l cup event. Sponsor: SAM 7

8/31/2013 - 9/1/2013 -- Bloomfield, CT (C-Restricted) CENTRAL CT GIANT SQUADRON. Site: Wintonbury Rc Club Field. Alan Willette CD PH: 860-803-5052 Email: al_willette@sbcglobal.net. IMAA Chapet 392. One of New England premiere event. 700 Ft grass runway with great approaches. Vendors, raffles, food and drink. Fun fellowship and flying all weekend. Come join the fun Sponsor: WINTONBURY FLYING CLUB

DE - Delaware

8/15/2013 - 8/18/2013 -- Newark, DE (C) 7TH ANNUAL SILENT KNIGHTS SOARING SOCIETY AEROTOW. Site: Big Pond Field. Antonio Nunez CD PH: 302-369-5343 Email: casadelwhacos@comcast.net. Visit: www.rcaerotowing.com. We use electric tow planes but will have gas tow planes to tow large sailplanes. Ample lodging in the Christina area. Landing fee \$15 for one day. 35 for weekend. Beautiful grass field. Please see Rcaerotowing.com for additional info. Sponsor: SILENT KNIGHTS SOARING SOCIETY

FL - Florida

8/3/2013 - 8/4/2013 -- Palm Bay, FL (AA) FMA DIXIE NATS. Site: Club Field. Ron Sharpton CD PH: 386-767-6138 Email: dixiefreeflight@aol.com. 8-7 AC, 8NOS and 10 Old time events. Classic towline A1/A2 combined. E36. National cup. Sponsor: FLORIDA MODELERS ASSOCIATION

8/31/2013 - 9/1/2013 -- Palm Bay, FL (AA) DISTRICT V CHAMPS. Site: Club Field. James Demeritte CD PH: 727-712-0996 8-7AC, 8-NOS and 10 Old time events. Classic towline A1/A2 combined. E36. National cup. Sponsor: FLORIDA MODELERS ASSOCIATION

GA - Georgia

8/17/2013 -- Dunwoody, GA (A) AUGUST INDOOR. Site: St Luke Prebyterian Church. Dohrn Crawford CD PH: 770-698-8737 Email: tum25@bellsouth.net. Visit: WWW.THERMALTHUMBERS.COM. Sponsor: THERMAL THUMBERS OF METRO ATLANTA

8/25/2013 -- Whitesburg, GA (A) POP PURDYS CONTEST. Site: Ng Turf 1487 Black Dirt Rd. Graham Selick CD PH: 706-548-2873 Email: gselick@bellsouth.net. Visit: www.thermalthumbers.com. Sponsor: THERMAL THUMBERS OF METRO ATLANTA

ID - Idaho

8/10/2013 - 8/11/2013 -- Parma, ID (AA) TREASURE VALLEY IMAC. Site: Club Field. Kendall Simmons CD PH: 208-452-7107 Email: flymstangs@hotmail.com. Events 411, 412, 415, 413, 414 (O) All five classes plus freestyle. Camping available, no hook ups. Sponsor: TREASURE VALLEY AEROMODELERS

8/17/2013 -- Shelley, ID (A) RED BARON "WHERE EAGLES DARE". Site: Club Field. Randy Shiosaki CD PH: 208-785-6691 Email: shiosaki@if.mci.net. Six rounds of 750 Scale combat 2610 and six rounds of 755 Open B Combat. Registration at 9AM first sortie at 10. \$20 per event or \$30 for both. Bring your own hard hat. Lunch provided. Sponsor: RED BARON RC MODELERS

8/31/2013 - 9/1/2013 -- Athol, ID (AA) NORTH IDAHO SOARING CHAMPIONSHIPS. Site: Farragut State Park. Lee Urbaniak CD PH: 509/455-5129 Email: lee.urbaniak@comcast.net. Sponsor: INLAND EMPIRE QUIET FLYERS

IL - Illinois

8/3/2013 - 8/4/2013 -- Newark, IL (A) 16TH ANNUAL FRED FREDRICKSON MEMORIAL THERMAL. Site: Central Sod Farm 12915 Rt 47. Richard Burnoski CD PH: 630-862-6611 Email: burnoski@comcast.net. Visit: www.soarchicago.net. OVSS#4, Seeded Man on man, 444 Unlimited Thermal duration soaring. Sponsor: SILENT ORDER OF AEROMODELING RADIO-SOAR

8/3/2013 - 8/4/2013 -- St Charles, IL (AA) CHICAGOLAND FOX VALLEY IMAC CHALLENGE 7. Site: Club Field. Douglas Swanson CD PH: 630.202.1058 Email: magicswanson@comcast.net. Visit: www.foxvalleyaero.com. 50x800' asphalt and grass runway. All 5 IMAC classes flown plus freestyle. On site camping, no hook ups. TX and battery charging station. See website for registration and details. Sponsor: FOX VALLEY AERO CLUB

8/4/2013 -- Rolling Meadows, IL (C) DAN KNIPPEN MEMORIAL BIG BIRD FLY IN. Site: Ned Brown Forest Preserve. Dana Berry CD PH: 847-772-5642 Email: vlns@sbglobal.net. Visit: crcmflyers.com. 20th Annual Dan Knippen Memorial Big Bird Fly In. Sunday, August 4, 2013. 830AM Registration. IMAA rules apply. Quarter-scale or 80" minimum wingspan. Prizes and refreshments. Sponsor: CHICAGOLAND RC MODELERS INC

8/11/2013 -- Morrison, IL (C) MMAFRC-QC SKYRAIDER FLIGHT FOR CANCER. Site: Rockwood State Park. Darryl Miller CD PH: 815-441-7044 Email: dlmrpilot@gmail.com. Visit: www.mmafr.org. Please join and help fight Cancer! Refracting, open flying for all types of R/C aircraft at beautiful Rockwood field. Raffle prizes. Food available on field. All proceeds go to local Sauk Valley Cancer organizations. Registration and flying begin at 9AM. Open flying all day. \$15 landing fee. AMA Sanctioned, AMA required to fly. Sponsor: MORRISON MODEL AIRCRAFT FLYERS

8/11/2013 -- Streator, IL (C) FLY IN BREAKFAST. Site: Club Field. Dale Chiavene CD PH: 815-672-1689 Email: modelpilot2@verizon.net. Visit: www.streatorflyer.com. 20th Annual fly in Breakfast. Check out our website. Come join us for our Breakfast and a Great day of flying. Sponsor: STREATOR RC FLYERS

8/17/2013 - 8/18/2013 -- Chillicothe, IL (AA) FAT LAKE PATTERN RENDEZVOUS. Site: Club Field. Robert Wilson CD PH: 309/219-4262 Email: wilsoirc@gmail.com. Visit: WWW.PEORIAARCMODELERS.COM. Sponsor: FREDERICK MODEL AIRCRAFT CLUB

8/18/2013 -- East Moline, IL (C) QUAD CITIES SKYRAIDERS FLOAT FLY. Site: 128 Island Ave. Richard Haney CD PH: 309-764-6089 Email: rhp61@att.net. Sponsor: QUAD CITIES SKYRAIDERS

8/18/2013 -- Riverdale, IL (C) BIG BIRD FLY IN. Site: Kickapoo Woods. John Spencer CD PH: 708-403-7184 Email: pbs154@aol.com. Visit: CHICAGOMODELMASTERS.ORG. Registration begins at 9am. Landing fee \$10. 400 ft paved runway. Sponsor: CHICAGO MODEL MASTERS

8/18/2013 -- Rockford, IL (C) 10TH ANNUAL ALL ELECTRIC FLY IN. Site: Rockford Park Dist Rc Mode. Timothy Scott CD PH: 815-239-2186 Email: blueacer1@frontier.com. Visit: www.rockvalleyrcflyers.com. Welcome to the 10th Annual All Electric fly in at the Rockford Park district RC model airfield. This is a free event with free parking and the usual Raffle at noon. Reg at 8am, open flying at 9am-1pm. Bad channels are 27, 28 and 29. Public welcome. Sponsor: ROCK VALLEY RC FLYERS

8/24/2013 - 8/25/2013 -- Champaign, IL (C-Restricted) GIANT PLANE FLY IN. Site: Club Field. Thomas Griffith CD PH: 217.355.6153 Email: tgriff4386@hotmail.com. Location 2.5 miles West of Mattis Ave on Hwy 150 Bloomington Rd North side of road. Sponsor: CHAMPAIGN COUNTY RC CLUB

8/24/2013 -- Ringwood, IL (C) ANNUAL ELECTRIC FUN FLY. Site: Pioneer Rd. Lawrence Dirubbo CD PH: 815.341.7889 Email: pourlemerit@hotmail.com. Visit: www.culeagles.com. Annual fun fly all types of powered aircraft. Grass field. Flying starts at 8am-4pm. \$10 landing fee includes pilot lunch. Contact us for further information. Sponsor: CHAIN O LAKES EAGLES

IN - Indiana

8/3/2013 -- Converse, IN (C) EAGLES AND FRIENDS FLY IN. Site: Converse Airport. Tamas Seres CD PH: 765.552.8770 Email: debraseres@sbcglobal.net. Visit: www.converseeagles.org. Come and have a day of fun. Fly what you bring. Noon time demos will include WWI, WWII flights. 3D airplane Helicopter demo. Look on website for updates. Food and drinks available. Landing fee \$10 and it includes 1 lunch ticket. Sponsor: MISSISSINEWA SKY HAWKS

8/3/2013 -- New Haven, IN (C) 17TH ANNUAL FT WAYNE ELECTRIC FLY. Site: Flying Circuits Club Field. Patrick Mattes CD PH: 260.478.7302 Email: pat-ingrid-mattes@juno.com. Visit: www.flyingcircuits.org. Join us for our Annual electric fun fly, with the best-in-class grass field and paved runway, plus plenty of sun shade. A day of fun flying and off the club competitions, plus prizes/raffles. Food available from the club kitchen. 8am-4pm. \$5 donation. Sponsor: FT WAYNE FLYING CIRCUITS INC

FORT WAYNE FLYING CIRCUITS ANNUAL "ELECTRI-FLY"

August 3, 2013
9:00 AM TO 5:00 PM
AMA Sanctioned
Electric Only Fly-In Event

Jefferson Township Park -
1702 So. Webster Road,
New Haven, IN 46774
Grass and Paved Runways
Large Unobstructed Flying Site

On Site Camping Available
Friday Evening and Sunday
Open Flying Welcome
Pilot Registration 8:00 AM and
A \$5.00 Donation Is Appreciated
Pat Mattes, CD - Ph 260-385-4608

8/4/2013 -- Dunlapville, IN (D) FLYING CIRCUS. Site: Club Field. J Scott CD PH: 765/962-3643 Email: jewell_scott_883@comcast.net. Sponsor: WHITEWATER VALLEY RC CLUB

8/10/2013 -- Columbus, IN (C) 5TH ANNUAL JOE GRUBE MEMORIAL BIG BIRD FLY IN. Site: Club Field. Martin Justis CD PH: 812.375.8894 Email: jandmjustis@att.net. Visit: www.brcrfiers.org. Flying, food and fellowship! Bring 80" monoplanes, 60" biplanes, true 1/4 scale or larger. Grass runway 90x500'. Landing fee \$10 includes lunch. You must have your AMA card, sorry, no jets. Sponsor: BARTHOLOMEW COUNTY R/C FLIERS

8/10/2013 - 8/11/2013 -- Muncie, IN (AAA) OLD TIMER NOSTALGIA FREE FLIGHT CHAMPS. Site: Ama Field. Meredith Chamberlain CD PH: 765-643-1885 Sponsor: CENTRAL INDIANA AEROMODELLERS

8/10/2013 - 8/11/2013 -- Winamac, IN (C) FUN FLY. Site: Club Field. Dennis Geiger CD PH: 574-360-5203 Sponsor: WINAMAC AERO-MODELERS

8/17/2013 -- Lafayette, IN (C) AMELIA EARHART FLY IN. Site: Mcallister Park. Jack Brewer CD PH: 765-838-8778 Email: jobair3@frontier.com. 24x210 paved runway plus long grass, 20 acres mowed. \$5 landing fee, 50-50 raffle, model stuff raffle. Food on site, restroom. Flying 10am-dark Sponsor: LAFAYETTE CLOUD JOCKEYS

8/17/2013 - 8/18/2013 -- Muncie, IN (AA) MIST FALL WOODY CONTEST. Site: IAC. Greg Prater CD PH: 765.759.8097 Email: gregp@modelaircraft.org. 2013 Fall Woody Contest. Woody rules 2 meter plus unlimited. Bungee ladder plus call-up winch. Come and have some Soaring fun. All are welcome! Site 5, 2.4 only. Sponsor: MID IND. SOCIETY OF THERMALERS

8/17/2013 -- New Haven, IN (C) MONSTER MASH. Site: Club Field. A Booth CD PH: 260.312.3185 Email: rcflyers39@hotmail.com. Visit: WWW.FLYINGCIRCUITS.ORG. Off Dalkens Rd at Webster Rd. East of New Haven Indiana. Note the tractor show is also at this location, tell the person at the ticket booth that you are going to the flying site. Sponsor: FT WAYNE FLYING CIRCUITS INC

FORT WAYNE FLYING CIRCUITS ANNUAL "MONSTER MASH"

August 17, 2013
9:00 AM TO 5:00 PM
IMAA Chapter 64 And AMA
Sanctioned Event

Jefferson Township Park -
1702 So. Webster Road,
New Haven, IN 46774
Grass and Paved Runways
Large Unobstructed Flying Site

On Site Camping Available
Pilot Registration 8:00 AM
Landing Fee Is \$10.00 -
Half Going To Toys For Tots
Friday Evening and Sunday
Open Flying Welcome
Al Booth, CD - Ph 260-312-3185

8/17/2013 -- Seymour, IN (A) FREEMAN FIELD. Site: 1261 N Ave. Rc Brooks CD PH: 812.200.0348 Email: rc_brooks@yahoo.com. Visit: www.sifer.com. All registration fees go to the Freeman Army Air Field Museum. Come fly with us at historic freeman field. Open flying starts at 10am. Fun scale (520) starts with static judging at 1130am. Cash prizes for the top 3 placings in the scale event. Door prizes, exhibitors, vendors and food will also be on site. No turbines please. Call to reserve a vendor space. Sponsor: SOUTHERN INDIANA FLYING EAGLES

8/18/2013--Universal,IN(C)BRAZILWINGEDMODELERS SUMMER FLOAT FLY. Site: Universal Town Lake. Ronald Pound CD PH: 812/877-2652 Email: acerj1969@gmail.com. Sponsor: BRAZIL WINGED MODELERS

8/24/2013 -- Indianapolis, IN (C) IRCHC SUMMER FUN FLY. Site: 10475 Crosspoint Blvd. Lou Peragallo CD PH: 317.663.3207 Email: lou.peragallo@yahoo.com. Visit: www.irchc.com. 5th annual Indianapolis RC Helicopter Fun Fly. Come and join us for a day of casual flying and see who shows up. Many prizes. \$20 landing fee, includes pizza lunch. Night flying, email CD if you have any questions. Sponsor: INDIANAPOLIS RC HELICOPTER CLUB

8/24/2013 -- Morristown, IN (C) TOYS FOR TOTS FLY IN. Site: Club Field. Michael Karnes CD PH: 317.716-6220 Email: karnes1025@tds.net. Visit: www.indycrmodelers.com. 10AM-6PM, Blue river airpark. 1 mile west of Morristown, IN. Landing fee \$10 or 1 toy. All toys and proceeds received will be given to the Marine Corp League of Morristown for distribution. Sponsor donated pilots raffles Pilots receive 5 tickets at Reg. Sponsor: INDIANAPOLIS RC MODELERS

8/24/2013 - 8/25/2013 -- Muncie, IN (AAA) NOFFA ANNUAL FF MEET. Site: lac. Rudy Klueber CD PH: 216/226-6838 Email: rjkhoncho@yahoo.com. Sponsor: NORTHERN OHIO FREE FLIGHT ASSN

8/24/2013 - 8/25/2013 -- Muncie, IN (AAA) THE FCM AT AMA. Site: Ama Field. Allen Goff CD PH: 765-759-7473 Email: cmf95@comcast.net. Sponsor: FELLOWSHIP OF CHRISTIAN MODELER ALDEN SHIPP

8/24/2013 -- Uniondale, IL (C) HCM TAILGATE SWAP MEET. Site: Psp Field. Edward Bennett CD PH: 260-413-1171 Email: ebennett327@gmail.com. Visit: huntingtoncountymodelers.com. Open flying all day, no fees. Raffle, food, vendors welcome. Bring your own swap tables. Rain date Aug. 31. Sponsor: HUNTINGTON COUNTY MODELERS CLUB

HCM TAILGATE
SWAPMEET
ALL DAY SWAP AND FLY
AUG 24
Uniondale, IN
9 AM till ??
Raffle, food, fly & swap
No fees, bring your own table
Contact: Ed Bennett, CD
260 413-1171
260 432-4648
ebennett327@gmail.com
huntingtoncountymodelers.com

8/29/2013 - 8/31/2013 -- Muncie, IN (C) INDIANA WARBIRO CAMPAIGN. Site: Muncie. Landis Harper CD PH: 765-533-4324 Email: chairdr@trc.net. Sponsor: HENRY CO WRIGHT FLYERS RC CLUB

KS - Kansas

8/10/2013 -- Kansas City, KS (C) SMRCC 2013 FLOAT FLY. Site: Wyandotte Co Lake. Malcolm Strader CD PH: 913/642-7697 Email: rcmac@everestkc.net. Visit: www.smrcc.net. \$10 pilot fee. AMA required, bring your own refreshments. No alcohol. Starts at 9AM ends at 2PM. Float planes only. Sponsor: SHAWNNE MISSION RADIO CONTROL CLUB

8/22/2013 - 8/25/2013 -- Milton, KS (AAA) 3RD ANNUAL MICKEY SULLIVAN MEMORIAL AEROTOW. Site: Clearview Field. Pat Mcclave CD PH: 316-640-7852 Email: pmccleave@cox.net. Visit: www.clearviewfield.com. Sponsor: CLEARVIEW FIELD

A complete list of Contest Coordinators can be found online at www.modelaircraft.org/events/contestcoordinators.aspx

You can find a directory of Contest Board Members at www.modelaircraft.org/events/cbmembers.aspx

9/14/2013 -- Salina, KS (C-Restricted) IMAA SAFE FALL FLY IN. Site: Smokey Hill Field. Donald Moden CD PH: 785/827-0923 Email: donmoden@sbcglobal.net. RV parking, 170 go to Ohio St. Exit 90S to S Hilling Rd and turn East to field. I35 go to S Hilling Rd turn East to flying field. Sponsor: KOKOMO BLUE ANGELS

9/21/2013 - 9/22/2013 -- Berryton, KS (C-Restricted) BLUE SKY AERODROME. Site: Blue Sky Aerodrome. John Dalton CD PH: 785/266-4227 Visit: nekbss.org. Annual IMAA fly in Sponsor: N.E. KANSAS BLUE SKY SQUADRON INC

9/28/2013 -- Lawrence, KS (C) JAYHAWK BIG BIRD. Site: Club Field, Patrick Deuser CD PH: 785/766/9254 Email: pdeuser@hotmail.com. Sponsor: JAYHAWK MODEL MASTERS INC

KY - Kentucky

9/7/2013 -- Lexington, KY (A) BSS MID AM SOARING CHAMPIONSHIP. Site: Coldstream Research Campus. Anjan Bhattacharyya CD PH: 859-317-1150 Email: alwaysinsink@yahoo.com. Visit: www.bgsoaring.org. Event 444 (JSO). At intersection of Aristedes and McGrathiana Pkwy. Sponsor: BLUEGRASS SOARING SOCIETY

9/7/2013 - 9/8/2013 -- Paducah, KY (C-Restricted) PADUCAH AEROMODELERS FALL FLY IN. Site: Club Field. Phillip Rood CD PH: 270-217-3150 Email: grefox@bellsouth.net. Sponsor: PADUCAH AEROMODELERS

9/8/2013 -- Lexington, KY (A) BSS MID-AM SOARING CHAMPIONSHIP. Site: Coldstream Research Campus. Anjan Bhattacharyya CD PH: 859-317-1150 Email: alwaysinsink@yahoo.com. Visit: www.bgsoaring.org. Event 444 (JSO). At intersection of Aristedes and McGrathiana Pkwy. Sponsor: BLUEGRASS SOARING SOCIETY

9/12/2013 - 9/15/2013 -- Shelbyville, KY (A) THE BRUCE. Site: The Thermal Farm. William Davidson CD PH: 502.957.2225 Email: got2soar@cr.com. This is an F3K, handlaunch soaring event.

9/19/2013 - 9/21/2013 -- Lexington, KY (C-Restricted) KENTUCKY FALL CLASSIC. Site: Club Field. Curtis Adams CD PH: 859.259.1537 Email: cadams5420@windstream.net. Visit: www.lmacky.org. Minimum wing spans- Mono planes 80", Bi planes 60". We will allow warbirds with a minimum wing span of 70". Facilities 700' asphalt, some grass. Camping allowed. Some 30 amp camper hook ups available. Landing fee donation. 859-421-0421 for more. Sponsor: LEXINGTON MODEL AIRPLANE CLUB

9/28/2013 -- Somerset, KY (C) SMAC ANNUAL FULL CLASSIC. Site: S Hwy 1247 Somerset KY. Jami Albright CD PH: 606-679-3158 Email: jami.albright@twc.com. Visit: www.smac-ky.com. Cometo Somerset KY for the Annual Fall Classic Giant Scale promoted this year fly anything. 500 ft paved runway, grass runway, cross runway, 50 acres site. Large shelter with picnic tables. Separate Heli pads/shelter. Water and electric on site. Concession stand. Porta Pots. Lots of prizes. Great bunch of guys, great times. \$10 landing fee, AMA required. Overnight camps welcome Sponsor: SOMERSET MODEL AIRPLANE CLUB

LA - Louisiana

9/14/2013 -- West Monroe, LA (C) NEARC BIG BIRD FUN FLY. Site: NEARC Tigers Field. Stanley Williams CD PH: 318/376-6940 Email: chswe800@yahoo.com. Big Birds have priority but all aircraft are welcome. Sponsor: NORTHEAST AERO RC CLUB

9/21/2013 -- New Iberia, LA (C) SUGARLAND BIG BIRD. Site: Club Field. Barry Bernard CD PH: 337-501-3819 Email: barybernard@cox.net. Visit: www.cajunrclub.com. Sponsor: CAJUN R/C CLUB

9/28/2013 -- Monroe, LA (C) FLOYD MCCARTY MEMORIAL FLY IN. Site: Back Of Bend Flyingclub. Todd Jackson CD PH: 318/325-2536 Email: tmjacks@bellsouth.net. Field open at 12pm on Friday. Friday night supper provided for pilots and guest. \$15 landing fee, lunch provided Sat for registered pilots. Concession stand available, anything flies, turbines welcome, campers ok-no hook ups. 600x150 grass runway. Sponsor: BACK OF THE BEND FLYING CLUB

MA - Massachusetts

9/1/2013 -- Sudbury, MA (A) CRRC ALTITUDE LIMITED ELECTRIC SOARING CONTEST. Site: Davis Field. Brian Rickman CD PH: 774-249-2494 Email: brian.rickman@gmail.com. Visit: chairesverr.org. Man on man format. 200m altitude limit. Limit switches are available at the contest. See website for details. Sponsor: CHARLES RIVER RCERS

9/13/2013 - 9/15/2013 -- Mansfield, MA (C) HELI PHENOMENON. Site: Club Field. Jeremy Walzer CD PH: 508.543.3969 Email: jeremy@rchover.com. Visit: www.nhelicrew.com. Largest RC Heli smack down fly on East coast USA. 3 days of fun and flying. Redneck night flying and much more. Last years raffles prizes totaled over 10,000. Worlds top pro pilots will be in attendance. For more info please see website. Sponsor: THE NEW ENGLAND HELI CREW

9/13/2013 - 9/15/2013 -- Mansfield, MA (C) HELI PHENOMENON. Site: Club Field. Jeremy Walzer CD PH: 508.543.3969 Email: jeremy@rchover.com. Visit: www.nhelicrew.com. Largest RC heli smack down fly on east coast USA. 3 days of fun & flying. Redneck night flying and much more. Last years raffle prizes totaled over \$10,000. Worlds top pro pilot as will be in attendance. For more info, see website. Sponsor: THE NEW ENGLAND HELI CREW

9/21/2013 - 9/22/2013 -- Wayland, MA (C) CHARLES RIVER FLOAT FLY. Site: Wayland. Ruane Crummett CD PH: 508/655-2234 Email: crclplanes@netzero.net. Sponsor: CHARLES RIVER RCERS

MD - Maryland

9/1/2013 - 9/2/2013 -- Hollywood, MD (AA) D1 VS D2 CHALLENGE. Site: Hellwig Field. Archie Stafford CD PH: 301-757-3997 Email: astafford@md.metrocast.net. Visit: www.paxaero.com. Contest is Sunday/Monday due to airshow on Saturday at local naval base. Pilots are welcome on Saturday to practice or attend airshow. Sponsor: PATUXENT AEROMODELERS

9/14/2013 - 9/15/2013 -- Bowie, MD (A) ANNUAL PGRG BIG BIRD WARBIRD FLY IN. Site: Club Field. Richard Moreland CD PH: 301/261-7366 Email: moreland1@verizon.net. Visit: www.pgrclub.com. 400 foot paved runway plus 800' foot grass strip. On field camping allowed. No facilities. \$10 landing fee. Sponsor: PRINCE GEORGES RC CLUB

ME - Maine

9/7/2013 -- Sanford, ME (C) C/L COMBAT AT SANFORD MAINE JET RALLY. Site: Sanford Airport. Ara Dedekian CD PH: Email: aradedekian@gmail.com. Control line Slow Combat flow to the New England GX Combat rules. Call Neal Simpson 1-508-867-8702 or podunk129@chartr.net for more info. The Jet Rally is a four day event with Combat being flown concurrently with RC Jets, Cars and Helicopters. Sponsor: SKY STREAKERS RC CLUB

9/14/2013 - 9/15/2013 -- Standish, ME (C) KIWANIS FLOAT FLY IN. Site: Kiwanis Beach. William Reeve CD PH: 207-797-8492 Email: willyreeve@yahoo.com. Overnight camping allowed- No hook ups available. No pets on beach. Landing fee \$10 for both days. Snack bar will be opened both days. Sponsor: PROPSNAPPERS INC

MI - Michigan

9/1/2013 -- Tustin, MI (C) CAMS. Site: Cams Field. Robert Baird CD PH: 231-768-4553 Email: baird312@gmail.com. 10 miles south of Cadillac on US 131, Exit 168, East to Blinker Light. Turn south to field. Open flying before and after show. Show time 2PM-4PM. Sponsor: CADILLAC AREA MODELERS SOC CAMS

9/7/2013 - 9/8/2013 -- Brighton, MI (C) MIDWEST REGIONAL FLOAT FLY. Site: Island Lake Recreation. Gregory Cardillo CD PH: 248-431-5562 Email: gmcardillo@att.net. Visit: www.skymasters.org. 2 days of flying off water! 80 plus pilots, 150 airplanes. Come join the fun. 1000' of beach. Retrieval provided. See ad. Sponsor: SKYMASTERS RC CLUB OF MI

9/7/2013 - 9/8/2013 -- Detroit, MI (AA) MICHIGAN CONTROL LINE STATE CHAMPIONSHIPS. Site: Rouge Park. Ron Colombo CD PH: 734.344.1212 Saturday-Speed Limit, Fast and Slow Combat. Clown Racing (Brodad rules) LA25 Sport race Canadian rules) Sunday- Double elimination F2D Combat and all carrier events. Sponsor: STRATHMOOR MODEL CLUB OF DETROIT

9/7/2013 - 9/8/2013 -- Lenox, MI (AA) TOM BRET MEMORIAL PATTERN CONTEST. Site: Radio Control Club Of Detroit. Peter Vanheusden CD PH: 586-598-1750 Email: peteriv@mailbutech.com. Visit: www.rcdd.org. Events 401, (Jr) (Sr) (Open), 402 (Jr) (Sr) (Open), 403 (Jr) (Sr) (Open), 404 (Jr) (Sr) (Open), 406 (Jr) (Sr) (Open). Sponsor: RC CLUB OF DETROIT

9/8/2013 - 9/5/2013 -- Goodells, MI (C) 31 ANNUAL MICHIGAN WHIRLBYRDS FUN FLY. Site: Goodells Park. Michael Lasker CD PH: 586.764.5143 Email: mlasker@wowway.com. Visit: WWW.MICHIGANWHIRLBYRDS.COM. Sponsor: MICHIGAN WHIRLBYRDS

9/14/2013 - 9/15/2013 -- Ypsilanti, MI (C-Restricted) FALL PHASE OUT FOR FUN FLY. Site: Flying Pilgrims Field. Jack Kezelian CD PH: 734.207.3626 Email: jkezelian24431mi@comcast.net. Come celebrate our 30th Giant Scale Meet. Free pilots lunch & Pizza Party On Saturday night. Fly from our 400 ft paved strip on 650 grass runway Sponsor: FLYING PILGRIMS

9/15/2013 -- North Branch, MI (AA) MMAC FALL MINI MODEL. Site: North Branch. Dave Edmonson CD PH: 612-220-5239 Email: dedmonson@comcast.net. AMA, FAI, NOS power events combined special junior event! Sponsor: MINNEAPOLIS MODEL AERO CLUB

MN - Minnesota

9/7/2013 - 9/8/2013 -- Laporte, MN (C) NCMC FUN FLY. Site: Ncmc Fly Field. Donald Clay CD PH: 218.556.8193 Email: dclay1965@gmail.com. Visit: ncmrc.com. The Big One all RC welcome. Food available. Primitive camping, electric available at flight line. \$30 landing fee includes Saturday evening meal. Early arrivals welcome. Sponsor: NORTH COUNTRY MODEL CONTROLLER

9/14/2013 -- Moose Lake, MN (C) STURGEON LAKE BALSA BUSTERS FLOAT FLY. Site: Moose Lake. Todd Booker CD PH: 218-372-3956 Email: tkbooker@mchsi.com.

MO - Missouri

9/7/2013 -- Lees Summit, MO (C) KCRC 2013 WARBIRD FLY IN. Site: Cw Reed Field. Susan Calvin CD PH: 816.478.8330 Email: scalvin47@earthlink.net. Visit: kansascityradiocontrol.com. This is a fun fly for Military or Military looking, RC airplanes. Food will be available from our grill. Registration begins 0800. Flying from 0900-1700. Landing fee \$15 includes catered meal at the end of day. Contact CD in advance so we can give caterer a proper head count. Additional catered meals will be 7\$ each. There will be a raffle plane. Sponsor: KANSAS CITY RC ASSN

9/7/2013 -- St Charles, MO (C) FALL HELICOPTER FUN FLY. Site: 73 Ambrein Rd. Tom Foster CD PH: 636-395-3517 Email: litespeed800@hotmail.com. Great field, great host and excellent food. All that's missing is YOU! \$10 landing fee includes lunch. Pilots prizes and raffles. Electric in pits. See website for more info, AMA event. Sponsor: SPIRITS OF ST LOUIS RC FLYING CLUB INC

9/14/2013 -- Jefferson City, MO (C) JEFFERSON CITY RC CLUB HELICOPTER FUN FLY. Site: Joseph Miller Memorial Field. James Crago CD PH: 573.338-3441 Email: melbajimcrago@yahoo.com. Visit: jrcr.com. Helicopter fun fly- All pilots welcome. Fuel and electric helicopters. Pilot prizes, food available. Sponsor: JEFFERSON CITY RC CLUB

9/21/2013 - 9/22/2013 -- Valley Park, MO (AA) BROKEN ARROW 26 STUNT SCALE. Site: Buder Park. Robert Arata CD PH: 636/391-0272 Email: srrarata@att.net. CL sport event 509 will split into Military and Non Military. CL Profile scale event 521 will split into Military and non Military. CL Stunt; 4 PAMPA classes, Basic flight profile stunt. Classis stunt/Nostalgia 30 stunt, Old time stunt, 1/2 A Scale Local rules Sponsor: LAFAYETTE ESQUADRILLE

NC - North Carolina

9/7/2013 -- Elm City, NC (C) FALL AMA FLY IN. Site: 7475 White Bridge Rd. A Gentry CD PH: 252/977-1525 Email: wn42462@centurylink.net. Landing fee \$10 Sponsor: TARHEEL R/C FLYERS

9/14/2013 -- Statesville, NC (C) ELECTRIC FLY IN FOR DAVE HOUSE. Site: Club Field. William Francis CD PH: 704-402-5927 Email: billfrancis@roadrunner.com. Visit: www.statesvillemodelers.org. All proceeds to benefit Dave house a childrens advocacy center. Donation for landing fee. Registration starts at 8AM. Pilots meeting at 9AM. Fly until.....Food available. Raffle and pilot prizes. Sponsor: STATESVILLE FLIERS RC CLUB INC

9/14/2013 -- Vanceboro, NC (C) SOUTHERN AIR RC FALL FLY IN. Site: 1451 Old Black Rd. Michael Zaytoun CD PH: 252-229-9161 Visit: southernairrc.com. Open Fun fly . Fly what you bring. 100x600 beautiful grass runway Great Fellowship and great food/prizes. \$10 landing fee. Registration 9AM. Sponsor: SOUTHERN SCALE WARBIRDS

9/20/2013 - 9/22/2013 -- Youngsville, NC (C) RDRC FLY FOR TOTS. Site: Club Field. Lawrence Lewis CD PH: 919.215.3946 Email: rclarry@aol.com. Visit: flyfortots.com. RDRCs Annual "Fly for tots" charity fly in. All proceeds to benefit the "Victory Junction Camp" in Randleaner NC. WWW.victoryjunctioncamp.org. Huge raffle prizes. Food on site. Primitive camping. RC simulators on site. Hobby vendors and much more. \$20 landing fee. Sponsor: RALEIGH DURHAM RADIO CONTROL

9/28/2013 -- Browns Summit, NC (C) 3RD ANNUAL GRAMS FUN FLY SWAP MEET. Site: Grams Airpark. Steve Vergamini CD PH: 336.430.5412 Email: svergamini@triad.rr.com. Visit: www.greenboroairradioeromodelers.com. Fly fly concurrent out door tailgate swap meet. Come fly, sell or do BOTH!! All types of Planes and Helis Ok- Glow, gas or electric; all good. Pilots fee of \$10, booth rental fee of \$10, 20 to fly and sell. Food concessions available on site. Sponsor: GREENSBORO RC AEROMODELERS

NE - Nebraska

9/27/2013 -- Omaha, NE (D) OMAHAWKS LABOR DAY AIRSHOW. Site: Standing Bear Lake Park. Edward Paasch CD PH: 402-496-8749 Email: bigedmustafa@aol.com. 34th Annual Omahawks Labor Day Airshow to benefit "Make A Wish of Nebraska". Dozens of different fly exhibitions of most every kind of model aircraft. Join us for a special day of excitement and entertainment for pilots and spectators alike! Sponsor: OMAHAWKS R/C INC

NJ - New Jersey

9/8/2013 -- Lincoln Park, NJ (C) NOSTALGIA COMBAT CONTROL LINE FESTIVAL. Site: Two Bridges Rd. Thomas Hampshire CD PH: 908/475-5787 Email: th31919@gmail.com. Fun fly for Pre 1975 combat airplanes. No official scoring; matches at discretion of entrants. Sponsor: GARDEN STATE CIRCLE BURNERS

9/15/2013 -- Middlesexboro, NJ (A) FALL COMBAT. Site: Mountainview Park. Paul Brill CD PH: 732/805-9122 Email: dukesder@aol.com. Super slow combat. Maximum speed 7.5 sec for 2 laps. Entry fee \$5 members, \$10 others. Sponsor: MIDDLESEX MODELERS INC

9/28/2013 -- Middlesex, NJ (A) CONTROL LINE RACING. Site: Mountainview Park. Philip Valente CD PH: 610.692.6469 Email: phiv5@comcast.net. 312- Slow rat. 2 oz Big Goodyear. Foxberg. Sponsor: SOUTH JERSEY AEROMODELERS

NM - New Mexico

9/6/2013 - 9/8/2013 -- Mcintosh, NM (C) F5J ELECTRIC SOARING CHALLENGE. Site: Gardner Turf Farm. Philip Gilbert CD PH: 505-990-8016 Email: sifu21049@comcast.net. Visit: www soarabq.org. Sponsor: ALBUQUERQUE SOARING ASSOC

9/14/2013 - 9/15/2013 -- Albuquerque, NM (AA) 6TH ANNUAL RMFM FALL PATTERN CLASSIC. Site: Rmfm Field. John Gayer CD PH: 505-990-7074 Email: jgg215a@comcast.net. Visit: www.rmfm.org. Any AMA legal aircraft allowed. Entry fee \$35. Field dedicated to practice on Friday. Separate unknown sequence to compete for the perpetual "watermelon cup" contest flyer available at nrsca. us or rmfm.org Sponsor: ROCKY MOUNTAIN FLYING MACHINE

NY - New York

9/1/2013 -- Phoenix, NY (C) S.T.A.R.AIRSHOW. Site: Club Field. Philip Morgan CD PH: 315.457.3674 Email: philipmorgan92@yahoo.com. Visit: www.amadistrictstarters.org. Open flying and Demos of all types of model airplanes and helicopters. Airshow hours; 10am-4pm. Free admission, \$5 parking. Free picnic dinner for all flyers and their families. Public welcome. Food and drinks available. Sponsor: SYRACUSE THUNDERBIRDS

9/6/2013 - 9/8/2013 -- Rhinebeck, NY (C) RHINEBECK JAMBOREE. Site: Old Rhinebeck Aerodrome. Warren Batson CD PH: 845-266-3862 Email: batson.warren@gmail.com. Visit: mhrcs.com. Scale models of aircraft built and flown before Dec 31, 1939. No WWII aircraft. Any scale 55 lb limit. Questionable aircraft shall require docs. Pre-registration at website. Reg starts Fri at 11AM, Sat and Sun rubber fly off, \$25 admits one AMA member for all days. Others pay Aerodrome admission. All vendors contact CD. Sponsor: MID HUDSON RC SOC

9/7/2013 - 9/8/2013 -- Lisle, NY (C) 30TH ANNUAL FALL FLOAT FLY. Site: Greenwood Park. Robert Balsie CD PH: 607/205-1078 Email: rc_flyer@stny.rr.com. Sponsor: AEROGUIDANCE SOC INC

9/12/2013 - 9/15/2013 -- Downsville, NY (C) THE NEAT FAIR. Site: Peaceful Valley Campsite. Thomas Hunt CD PH: 631-835-5359 Email: tomhunt@optonline.net. Visit: www.neatfair.org. One of the nation's largest electric model "fun fly". 1700x600 grass strip, hundreds of models, pilots. Flight demonstrations, vendors. On site accommodations/food, spectator and pilots raffles. Thursday is set up day, flying is allowed but no scheduled activities. Sponsor: SILENT ELECTRIC FLYERS OF LONG ISLAND

9/14/2013 -- Wawayanda, NY (AMA record Trial) SKYSCRAPER MONTHLY. Site: Barron Field. Alan Abriss CD PH: 212/275-6362 Email: alan@alanabris.com. Visit: brooklynskyscrapers.org. Sponsor: BROOKLYN SKYSCRAPERS

9/21/2013 - 9/22/2013 -- Goshen, NY (AA) MORTHEAST IMAC REGIONAL FINALS. Site: 178 Indiana Rd. Anthony Bonanno CD PH: Email: tonybons@yahoo.com. Visit: www.buckdirtsquadron.org. Sponsor: BLACK DIRT SQUADRON

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Old-to-new Cleveland Viking

Bob Galler (meccanom@msn.com) from Rio Rancho, New Mexico, sent in this photo of his Old-Timer electric RC airplane, the Cleveland Viking. The image was taken at the Albuquerque, New Mexico, Balloon Fiesta Field during a flying session on March 27, 2013.

Bob noted that the aircraft was originally gas powered and had been converted to electric power. It is scaled up from the original 48-inch wingspan to 64 inches to be more competitive in the Society of Antique Modelers' Limited Motor Run (LMR) event. The Cleveland Viking weighs 34 ounces.

Its older, geared 035 Astro Flight motor turns an APC 10-inch propeller. It sports a Hobby King receiver and two-cell 850 mAh Turnigy nano-tech (50C) LiPo

battery, with a Jeti brushed ESC.

"Many confuse the Viking for the Cabin Playboy," Bob wrote, "but that was another Cleveland plane of the same era. [The Cleveland Viking] is a great and stable climber with [a] flat glide. Covering was transparent red and white MonoKote—over 10 years ago. This plane has been flown for eight years with only minor improvements or repairs."

The photo was taken using a Nikon Coolpix L22 camera, with a focal length of 7mm, f-stop of f/5.5 and ISO of 80, at 1/320-second exposure time. 📷

Email your high-resolution "Viewfinder" photo and a short note telling the airplane or helicopter story to jays@modelaircraft.org.



JS: How did you get involved with model aviation?

TW: In my early childhood, historical events of the postwar years conspired to bring me to model aviation. Chuck Yeager and the Bell X-1 were breaking the sound barrier; the military was transitioning from propeller planes to jets; airlines were enjoying unprecedented growth; and the air traffic in my hometown was quickly increasing. At every family or neighborhood get-together there were dads, uncles, and family friends swapping war stories about their air adventures over Europe or the Pacific. And Herman's Hobby Shop opened for business on my daily route to and from school.

JS: How has model aviation impacted your life and/or career?

TW: Next to drawing and painting, craftsmanship is very important to an artist's work. As a modeler I learned early on that success comes from preparation, planning, and the proper use of tools and materials. Model aviation has been an aid in understanding aircraft structure and flight performance.

Good artists paint what they see; great artists paint what they know. Structure is fundamental to drawing any subject and modeling aircraft has helped me in my work.

JS: What disciplines of modeling do you currently participate in?

TW: I have participated in different areas of modeling through the years—Free Flight, Control Line, Pattern, and Scale Aerobatics. In the early 1980s, I settled into RC Giant Scale.

I also enjoy studying aviation history because the people who designed and built the famous and innovative aircraft of the past fascinate me.

Yet whether building from scratch or plans, I still delight in fabricating my own components rather than using a laser-cutting service. Making the parts myself is not only a personally satisfying exercise, it helps me to better envision the final assembly.

And I love flying these creations as much as building them. Piloting a newly built Scale aircraft for the first few times is always a knee-knocking experience that gets the adrenalin flowing. I enjoy the challenge of making these miniature replicas perform in the same manner as their full-scale counterparts.

JS: What are your other hobbies?

TW: Oil painting is my most avid interest. I also enjoy maintaining and driving my 1959 Triumph TR-3 named "Winston" (its bug-eyed countenance says it all). Early British sports cars have a personality and a drivability that is unique to the breed and, for me, putting these cars through their paces is a great way to clear the cobwebs and relieve stress.

JS: Who (or what) has influenced you the most?

TW: This is a tough question for me to answer in the space of this interview. With a successful career in graphic arts spanning over 40 years, there have been more than a few people and many experiences that have influenced me.

My wife, Gail, tops the list, along with my high school art teacher Fr. Bud Cullen C.S.B., and the Navy pilot of a PB4Y-2 Privateer who, in 1955, took an airplane-crazy fifth grader on his first flight. I have had many opportunities to fly in some great airplanes, but nothing will ever replace my cherished memory of flying over Lake Ontario in that big, lumbering patrol bomber.

JS: How did you get started as an aviation artist and illustrator?

TW: *How to Draw Planes*, by Frank Wootton, was my first book on drawing. During my grade school years, it was confiscated more than once during classes.

My enthusiasm for drawing the great airplanes of the day often got in the way of my schooling, which led my eighth-grade teacher to comment that I'd "best pay attention to my studies because I would never make a living drawing airplanes." Thank goodness she was wrong.

Drawing and painting airplanes has always been a hobby of mine, but in the late 1970s I was hired by an ad agency to do a painting of a Spitfire for a client's ad campaign. The ads appeared in quite a few trade magazines.

Many readers wanted to purchase a print of the Spitfire or contacted me for more work. Since then I have been working quite regularly providing paintings and illustrations to corporations, museums, magazines, book publishers, and for private commissions, as well as producing my own books on aircraft history. 🛩️

mini **Titan** E325 *S*

Flybarless 450-Size Electric Heli



An amazing heli for any pilot.

It's hard to imagine any heli modeler who wouldn't be drawn to the Mini Titan E325 Sport — that's how appealing this machine is. If you're just starting out, you'll appreciate that it's 95% preassembled. Plus, there's a convenient combo option that includes a battery and charger.

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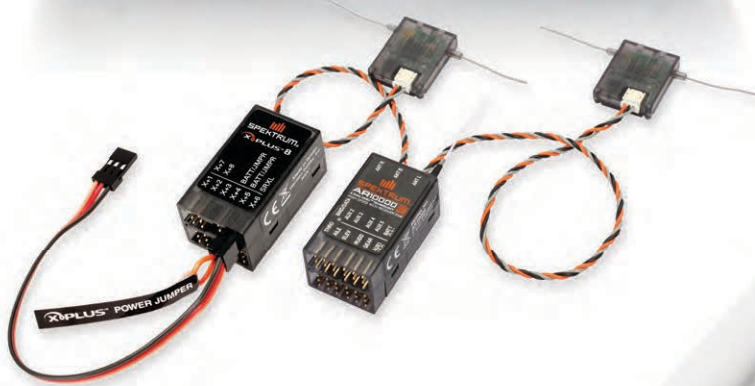
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