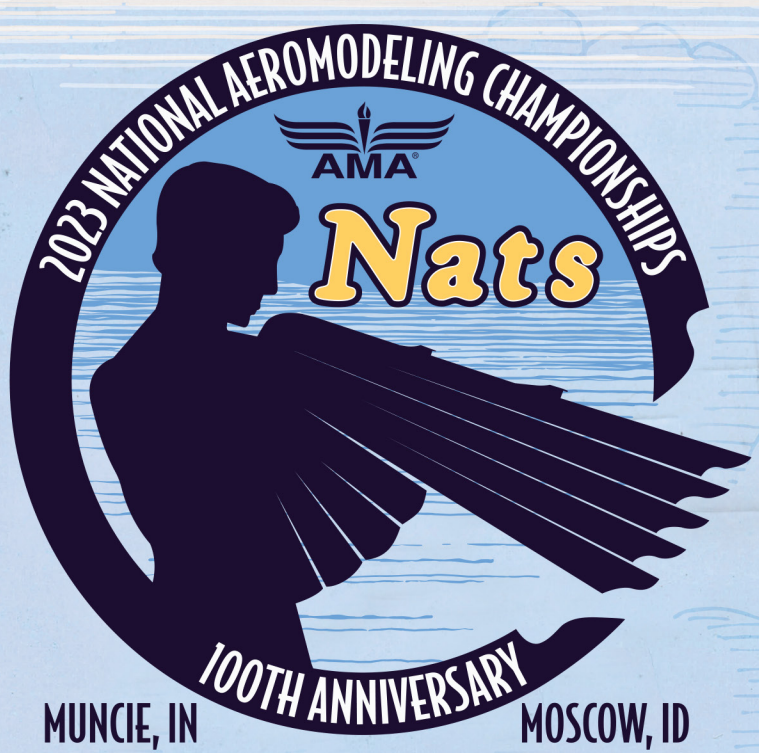

MUNCIE, IN MOSCOW, ID

OUTDOOR COMPETITION

Presented By

DU-BRO

A Name You Can Count On.

ABOUT AMA

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.

The Academy provides leadership, organization, competition, communication, protection, representation, recognition, education, and scientific/technical development to modelers.

OUR VISION

We, the members of the Academy of Model Aeronautics, are the pathway to the future of modeling and are committed to making modeling the foremost sport/hobby in the world.

This vision is accomplished through:

- Affiliation with its valued associates, the modeling industry, and governments.
- A process of continuous improvement.
- A commitment to leadership, quality, education, and scientific/technical development.
- A safe, secure, enjoyable modeling environment.

AMA®
ACADEMY OF MODEL AERONAUTICS

WELCOME

to the 2023 Outdoor
National Aeromodeling Championships

You Are a Part of History

Welcome to the 100th anniversary of the Nats! You are a part of history! The first Nats started in 1923 at the St. Louis Air Race Contest roughly 300 miles away from the AMA International Aeromodeling Center.

The 100th anniversary Nats logo took design elements from the event poster and the Mulvihill trophy that was awarded. You can see the original Mulvihill trophy and many other Nats exhibits in our National Model Aviation Museum.

Lots of work went into this year's 100th Anniversary Nats, presented by Du-Bro. Thanks to our staff, AMA Executive Council, volunteers, sponsors, Special Interest Groups, and, of course, our competitors. Whether you walk away with a trophy or not, you will make friends, learn something new, and make history.

While this year is the 100th anniversary of the first Nats, due to a hiatus during World War II, the 100th running of the Nats will take place in 2026, which is also AMA's 90th anniversary. This year's Nats celebration will not end in July after the last event, but will continue for the next few years, culminating in 2026! Be sure to return and bring a friend.

Good luck!

Chad Budreau
AMA Executive Director

WELCOME

to the 2023 Outdoor
National Aeromodeling Championships

Competition Is King

For more than 100 years, competition has been the driving force behind innovation and new technologies within the aeromodeling venture, and it has fostered growth and expanded interest in the hobby. For the first time two modelers flew their aircraft together, they endeavored to see who could build the best, fly the fastest, or achieve the greatest level of precision.

Each summer, aeromodeling communities across the nation come together to compete and participate in the annual National Aeromodeling Championships, commonly referred to as the Nats. Thank you for participating in this year's Nats, sponsored by Du-Bro. This year's Nats is special because it marks the 100th anniversary of the first Nats. We welcome you to this historic event! Whether you walk away with a trophy or not, I'm confident you'll learn something new, meet some new friends, and have a great time.

Rich Hanson
AMA President


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THE NATS

The National Aeromodeling Championships, commonly referred to as the Nats, is defined as the one or more annual model aircraft competitions conducted by or sanctioned by AMA for the purpose of determining the champion or champions in each category. In 1923, there was only one event: the Mulvihill Trophy event. Throughout the years, many more events have been added to the competition, encompassing several weeks in two or more locations every summer, the Mulvihill contest remains an important and coveted perpetual trophy for rubber-powered Free Flight aircraft.

The Beginning of Nats: The 1923 Mulvihill Trophy Race

When you visit the National Model Aviation Museum, you might notice the large number of trophies on display. These are perpetual trophies, meaning they are still awarded every year to the best competitor in each event. After the winner's name is emblazoned on the trophy, it is returned to the exhibit case until the following year.

The Mulvihill, in particular, is one of the most important Nats trophies. Not only was it the first trophy awarded, but it also has a fascinating history. Before the 1923 Nats, Bernard H. Mulvihill, vice president of the newly incorporated National Aeronautics Association (NAA), decided to establish a national model airplane event. Many modelers had been clamoring for national competition for years and Mulvihill saw the 1923 St. Louis Air Races as the perfect occasion to introduce the event. He announced a sculpture contest to promote the design of a model aircraft trophy for the new contest, It was open to any student at an accredited art school with a specialization in sculpture. The three best designs were to be awarded cash prizes totaling more than $150 with the judging taking place at the NAA headquarters in late summer. Initially, the design that gained the most popularity and publicity was not what we recognize today as the Mulvihill trophy, but a design depicting a young boy holding a model airplane; however, that particular design, along with the identity of the winning artist, have both been lost.

Poster for the 1923 St. Louis Air Races, where the first Nats event was held.

The Mulvihill trophy we recognize today depicts Icarus, a figure from Greek mythology. The story of Icarus is a familiar one. In an attempt to escape from imprisonment on the island of Crete, Icarus was overconfident and flew too close to the sun, which resulted in his plummet into the sea. The casting of Icarus for a flying trophy reminds us not to be too arrogant in our abilities as aeromodelers.

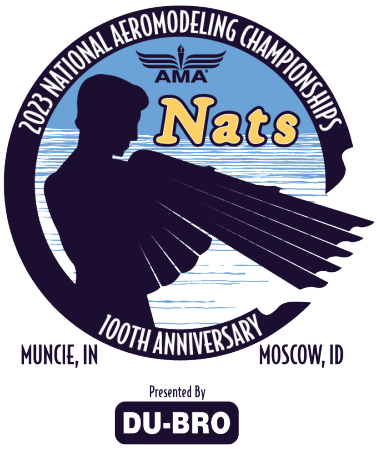
In 1923, the singular event in the Nats was an outdoor rubber-powered model contest. In addition to winning the Mulvihill, there were cash prizes totaling $300. The winner was Edward G. Lange, a 16-year-old from Chicago, who won with a 4 minute, 22.6 second flight with his twin pusher. His name is clearly engraved on the base of the Mulvihill, and can be seen alongside all of the subsequent winners of the contest, which is still held today.

For the Nats centennial anniversary, the logo needed to be representative of the history and the people who make our sport one of the longest-lived traditions in Aviation.

Celebrating the 100th Anniversary

Inspiration for the logo was taken from that first competition in 1923. The font treatment for Nats was inspired by the bold letters in the 1923 St. Louis Air Races poster, and the figure presented inside the emblem is the silhouette of Icarus from the sculpture on the Mulvihill trophy. Secondary text uses an art-deco style, as the trophy was also created during the use of this artistic expression in history. We let Icarus's wing break the emblem and accent its ends with the shape of Icarus' feathers. We hope that you will help us celebrate the 100th anniversary of this long-lived tradition starting June 19th.

The Mulvihill Trophy symbolizes Icarus strapping on his wings.



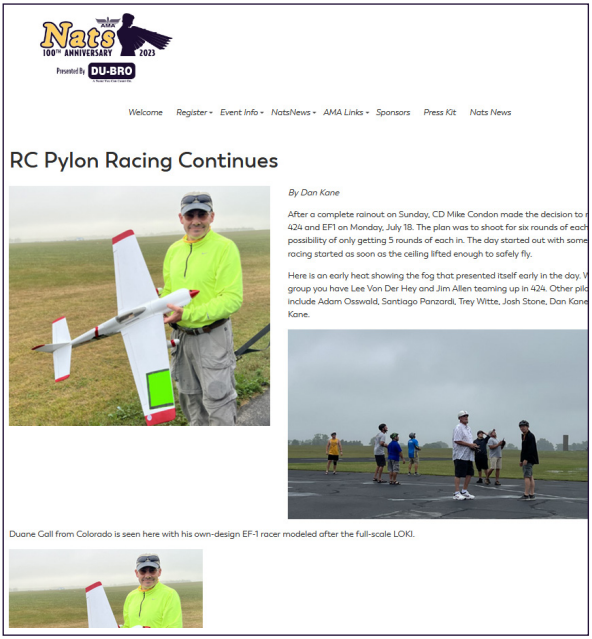
SCHEDULE

JULY 6 – 9	CL SCALE
JULY 6 – 9	RC SCALE
JULY 8 – 14	CL RACING
JULY 9 – 14	CL SPEED
JULY 9 – 14	CL CARRIER
JULY 9 – 14	CL PRECISION AEROBATICS
JULY 9 – 14	RC PYLON
JULY 10 – 14	CL COMBAT
JULY 11 – 13	RC COMBAT
JULY 15 – 23	RC SOARING
JULY 17 – 21	OUTDOOR FREE FLIGHT
JULY 23 – 27	RC AEROBATICS
JULY 28 – 31	RC SCALE AEROBATICS
JULY 30 – AUG 3	RC HELICOPTER

NATSNEWS

NatsNews provides a report about each event taking place during the Nats, written by subject-matter-experts, who in most cases are either volunteering or flying in the events they are covering.

The daily reporting can be found at ***nats.modelaircraft.org.***



NATS EVENTS

RC SCALE *July 6 - July 9 · Site 4*

RC Scale models are miniature replicas of full-scale aircraft. They are judged for the degree of perfection in matching the full-scale aircraft's scaled measurements, finish, details, etc. How well the models' flight maneuvers match those that the full-scale aircraft could perform is also scored.

The models are quite varied; nearly any airplane you can think of has been modeled. Today, even jet aircraft are becoming popular and are normally found in the top 10 of any Scale contest. Sponsored by NASA National Association of Scale Aeromodelers. **(nasascale.org)**

CL SCALE *July 6 - 9 · Site 6*

These models are replicas of full-scale aircraft. They are judged for workmanship, accuracy of detail, and other factors. They must fly and are scored on their ability to take off, land, and perform other tasks.

Precision Scale aircraft are the most detailed models and must be accompanied with airplane documentation showing the model's fidelity to the full-scale aircraft.

Sport Scale requires less-precise detailing, and the aircraft are judged from a distance. Profile Scale is similar to Sport Scale, with the added provision that the models have profile (slab) fuselages. In Sport and Profile Scale, flying increases in importance. **(nasascale.org)**

CL RACING *July 8 - 14 · Site 6*

There are several classes of CL Racing, but the idea is the same for all: finish the designated number of laps before the competition ends. Those who turn in the fastest preliminary heats advance to longer feature races.

Two or more entries fly at the same time. This is a team event, with each team consisting of a pilot and one or two people serving as a pit crew. Upon the "go" signal, the pit crew starts the engine and releases the aircraft. One or more pit stops for fuel are required in each race. Many of the aircraft are equipped with shutoffs, so the pilots can land whenever the team decides. Other elaborate equipment is designed to speed up the mandatory pit stops. Watch for quick landings and fast restarts. **(nclra.org)**

RC PYLON *July 9 - 14 · Site 3*

RC Pylon Racing is high-speed excitement. These small aircraft obtain speeds of nearly 200 mph!

The models fly 10 laps around a course marked by three pylons. The pilots stand in the middle of the course, turning the aircraft to circle the pylons.

Pylon Racing requires good depth perception and quick reflexes. A tenth of a second flown beyond a pylon can lose the race. Turns are judged, and any "cuts" (turning short of the pylon) cause a penalty lap to be run.

The aircraft typically fly in four-airplane heats. Points are awarded based on the finish order. The pilot with the most total points after all heat racing is finished is the event winner.

Four classes of Pylon Racing are flown: Sport Quickie (424), Electronic Formula 1 (421), Super Sport Quickie (426), and Quarter 40 (422). Each class has different airframe and motor requirements. **(nmpra.net)**

CL PRECISION AEROBATICS *July 9 - 14 · Site 1*

Beautiful, large aircraft perform a prescribed stunt pattern before a panel of judges. Flights are scored by smoothness and accuracy of maneuvers, with a bonus for aircraft appearance.

There are no design restrictions, but most models typically use .35-.60-size engines, with wingspans reaching more than 5 feet.

Precision Aerobatics is divided into skill classes for beginner, intermediate, advanced, and expert fliers. Two related events are Old-Time Stunt, using pre-1953 Stunt pattern and aircraft designs, and Classic Stunt, using aerobatics and aircraft designs that are more than 25 years old. **(pampacl.org)**

CL NAVY CARRIER *July 9 - 14 · Site 5*

There are three official Carrier events flown across the US: Class I, Class II, and Profile. There are also several unofficial events including Sportsman Profile, .15, Sig Skyray .35, and Nostalgia.

Most of the events are scored and flown the same way. There is a wide diversity of scores earned. High speeds can range from approximately 70 mph all the way up to 120 mph. Low speeds can average as slow as 4 to 8 mph. Many times, it is difficult to judge whether or not the model is stopped.

Carrier designs tend to be slightly more complex than other CL models. A typical airplane will have up- and down-elevator, throttle, and a tailhook. Other controls can be added, such as flaps, ailerons, and rudder. With the exception of the elevator and throttle, the other controls are usually deployed only once, after the high-speed flight. They remain locked into position. **(Navy Carrier Society)**

CL SPEED *July 9 - 14 · Site 2*

The object of this event is simply to fly a prescribed distance at the fastest possible speed. This is a horsepower and technology event. The aircraft are small and aerodynamically sophisticated, with specially prepared engines turning very high rpm.

Some have no landing gear, rising out of wheeled "dollies." Some are flown on single wires controlled by a torque system, meaning the aircraft's control surfaces are operated by twisting a wire.

There are several classes that correspond with engine sizes. Unless noted, there are no restrictions on design.

These high-performance models take a minimalist approach to aerodynamics and are finely tuned pieces of equipment. Most of the classes involve the use of internal-combustion engines ranging in size from .049 to .65 cubic inch. Pulse jet engines are used in the advanced classes and have the ability to reach speeds nearing 200 mph. **(clspeed.com)**

CL COMBAT *July 10 - 14 · Site 7*

Wild and exciting action in Combat makes it a favorite event for spectators. Two highly maneuverable aircraft, each towing a streamer, attempt to cut each other's streamers or string leaders. Scoring is by cuts and airtime within the 5-minute match period. Scoring a cut on the streamer is worth 100 points. Each aircraft also scores one point for each second it is airborne during the match. In some events, cutting the string leader constitutes a "kill," ending the match.

1/2A Combat uses tiny .049 engines and 42-foot lines. There are no restrictions on aircraft design and a kill ends the match. Slow or Speed Limit Combat uses larger aircraft and engines, restricted to an airspeed of 75 mph. Matches can be exciting because the Speed limit equalizes equipment and puts the emphasis on pilot skills. There is no kill.

AMA Combat, also known as Fast Combat, is the top-gun Combat event, and the flying is among the most exciting and demanding in all of model aviation. Engines of up to .36 size turn more than 20,000 rpm and haul the highly maneuverable aircraft at up to 125 mph. Kills end the match making it the most explosive, quick-ending event in the mix.

FAI or F2D Combat is the international class. Competitors are allowed two .15-size-powered aircraft per match. There is no kill and the rules maximize the head-to-head flying. **(macasite.org)**

RC COMBAT *July 11 - 13 · Site 4*

The objective of RC Combat is to recreate the excitement of World War II fighter combat in an enjoyable, safe competition that is interesting for the spectators and challenging for the contestants.

RC Combat involves multiple airplanes, each carrying a crepe-paper streamer. The objective is to cut the opponent's streamer while protecting your own. RC Combat is an inexpensive sport with aircraft that are made from a variety of materials.

Several classes of Combat are flown in the US: Limited B, Scale 2948, and Slow Survivable Combat (SSC) offer a level playing field by restricting rpm and using a specified propeller. Becoming popular with newer electric-power-only pilots is provisional E-1000.

Witnessing RC Combat allows you to experience the excitement as four or more aircraft battle one another. Of course, the biggest thrill is to be one of the pilots. It is 5 minutes of pure exhilaration in the air as you compete with other pilots! **(rccombat.com)**

RC SOARING *July 15 - 23 · Site 4, 5*

RC sailplanes use warm, rising air called thermals to remain aloft, with no other form of propulsion to sustain them once launched. Competitors fly their aircraft to achieve both an exact duration aloft measured by a stopwatch, and a precision landing measured by the distance the sailplane stops from a predetermined landing spot.

Launch methods depend on the sailplane type and competition task. Some sailplanes are towed aloft using an electric winch. Others use an electric motor that runs for up to 30 seconds before it stops and the propeller folds back, allowing soaring flight to begin. Some are launched like a discus right out of the competitor's hand, while others are launched with a rubber bungee cord.

In each event, competitors fly in groups with other randomly selected pilots, all flying the same task. Up to 10 sailplanes are flown simultaneously, pitting each pilot's skill against their competition in the same air at the same time.

Points are awarded for flight time accumulated in a given round and additional points are awarded for the distance the sailplane lands from its designated landing spot. In one competition, points are deducted based on launch height, rewarding pilots who take risks to launch their airplane lower than other competitors and still complete their flight and landing tasks.

The newest RC Soaring competition uses GPS to monitor and record the sailplane's flight path around a small cross-country course, while another competition celebrates the history of Soaring by only allowing its competitors to fly sailplanes that were designed before 1980. In RC Soaring competition, the sky is the only limit! **(silentflight.org)**

OUTDOOR FF *July 17 - 21 · Site 1, 3, 4*

FF models are under no control from the builder/flier after they are released for flight. Controlled flight is achieved through preset adjustments and onboard timers and/or fuses that control various functions such as engine cutoff, transition from climb to glide, and recovery.

Most Outdoor FF events are duration contests; the longest total flight time wins. Restrictions on fuel, engine size, rubber motor, or towline length are among the ways performance can be limited, thus making long flight times difficult to achieve.

To lessen the chance of a single lucky flight winning an event, and to reduce the risk of lost

models, flight times are limited to a maximum per flight that will keep the models within the boundaries of the field. Should a contestant achieve three maxes in six flight attempts, a sudden-death flyoff is held until tie scores are broken or a winner is determined.

Recovery of FF models is generally achieved with some sort of dethermalizer, which is a device designed to prevent the aircraft from being carried great distances by updrafts of warm air called thermals. The device deflects major control surfaces, which stops forward flight and brings the model floating back to Earth. **(freeflight.org)**

RC AEROBATICS (PATTERN) *July 23 - 27 · Site 1, 3, 4*

Pattern pilots are judged according to the degree of precision with which they execute a sequence of maneuvers (the Pattern). These maneuvers require a high degree of piloting skill. Many pilots use purpose-built aircraft for greater precision.

A switch from nitro-powered engines to electric motors has been taking place. 2022 was the first "all-electric" Nats. There are four AMA classes and one FAI class. Maneuvers vary in the level of difficulty and must be presented smoothly and gracefully before a panel of judges. Each maneuver is assigned a K Factor, which is a multiplier based on the difficulty of the maneuver. **(nsrca.us)**

RC SCALE AEROBATICS *July 28 - July 31 · Site 3*

The objective of RC Scale Aerobatics is to demonstrate the precision and excitement of flying a Scale model replica in a manner that closely resembles the agility of the full-scale, world-class aerobatic champions of today.

Following in the footsteps of the International Aerobatic Club, in which full-scale pilots fly a specific set of outlined maneuvers in front of a panel of judges, RC pilots perform a similar set of sequences designed to suit one of the four skill-level classes: Sportsman, Intermediate, Advanced, and Unlimited.

The aircraft flown in competition are typically the largest seen during the Nats, ranging in size from 25% to 45% of the full-scale aircraft they are built to resemble. They weigh between 22 and 45 pounds and are powered by gas engines that produce between 8 to nearly 20 hp.

The competition concludes with the Freestyle event, in which pilots fly an original aerobatics routine that lasts 4 minutes. The routines are typically choreographed to music and feature daring, low-level altitude stunts. **(mini-iac.org)**

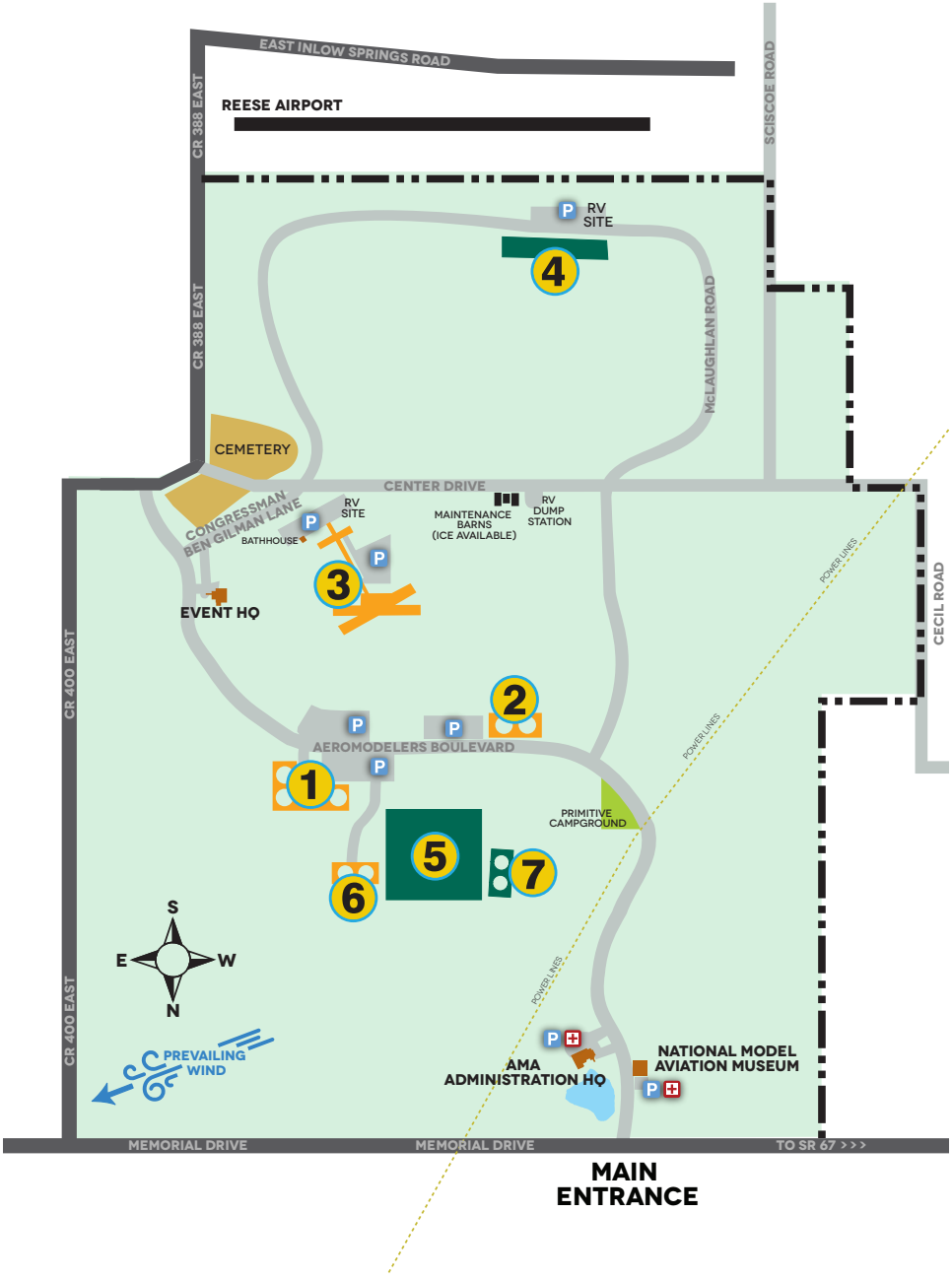
RC HELICOPTER *July 30 - August 3 · Site 4*

RC helicopters use a powerplant to turn a gear train, driving the main rotor system and tail rotors. They are capable of maneuvers that full-scale helicopter pilots only dream about.

Each class has an established set of maneuvers that pilots must accomplish, and judges grade each maneuver. Class I includes primarily hovering-type maneuvers; Class II adds some forward flight, including a loop and stall turn; Class III adds even more aerobatic maneuvers and includes a power-off autorotation landing; and F3C adds a number of aerobatic maneuvers to test pilots and machines.

The flight ends in a power-off autorotation landing that must be on a small spot for maximum points. (Not many miss it.) Helicopters also have a Scale competition. **(ircha.org)**

IAC SITE MAP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CENTER DRIVE
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BATHHOUSE
RV SITE
MAINTENANCE BARNS (ICE AVAILABLE)
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MAIN ENTRANCE

THE AMA SAFETY CODE IS IN EFFECT AT ALL TIMES.

1. I will not fly a model aircraft in a careless or reckless manner.

2. I will not interfere with and will yield the right of way to all human-carrying aircraft using AMA's See and Avoid Guidance and a spotter when appropriate.

3. I will not operate any model aircraft while I am under the influence of alcohol or any drug that could adversely affect my ability to safely control the model.

4. I will avoid flying directly over unprotected people, moving vehicles, and occupied structures.

5. I will fly Free Flight (FF) and Control Line (CL) models in compliance with AMA's safety programming.

6. I will maintain visual contact of an RC model aircraft without enhancement other than corrective lenses prescribed to me. When using an advanced flight system, such as an autopilot, or flying First-Person View (FPV), I will comply with AMA's Advanced Flight System programming

7. I will only fly models weighing more than 55 pounds, including fuel, if certified through AMA's Large Model Airplane Program.

8. I will only fly a turbine-powered model aircraft in compliance with AMA's Gas Turbine Program.

9. I will not fly a powered model outdoors closer than 25 feet to any individual, except for myself or my helper(s) located at the flightline, unless I am taking off and landing, or as otherwise provided in AMA's Competition Regulation.

10. I will use an established safety line to separate all model aircraft operations from spectators and bystanders

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Valley View RC

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