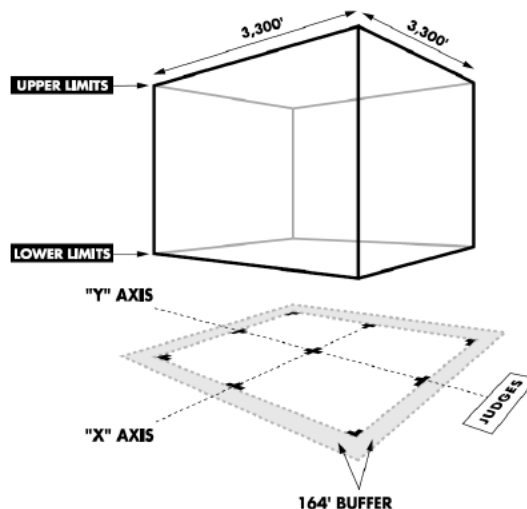




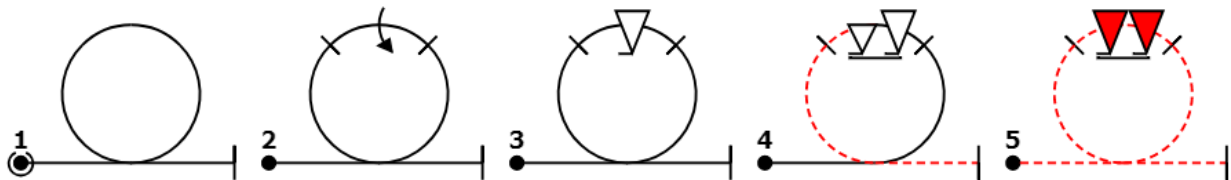
## Welcome to the International Aerobatic Club contest.

Competition aerobatics is the sport of precision flying. Contestants endure great physical and mental stresses to deliver a performance that appears graceful and effortless. Every year the IAC sponsors regional aerobatic contests at over thirty locations throughout the United States and Canada. Pilots fly in five levels of competition based upon the pilot's skill and the capabilities of the aircraft. The five levels are Primary, Sportsman, Intermediate, Advanced and Unlimited. All contestants fly within the confines of an aerobatic box which measures 1000 meters wide and 1000 meters deep. The lower limit of the box for the Primary level is 1500 feet above the ground and descends to only 328 feet for the Unlimited competitors. The edges of the box are monitored by boundary judges and penalties are assessed when a competitor flies beyond the lateral boundaries of the box. Minimum altitude infringements are also penalized. The judge's line usually consists of three to seven judges and each judge has an assistant who calls out the figures to be flown and a recorder who writes the judge's scores.



Contestants usually fly three times during the course of the competition. They will first fly a **KNOWN** sequence of six to twelve figures. This sequence remains the same for each category during the entire competition season. In most categories a **FREE** sequence is flown next. This is a sequence which each pilot may design within certain parameters to suit his own flying style and highlight the capabilities of his aircraft. The third flight is an **UNKNOWN** sequence which is revealed to each pilot at least 12 hours before he is required to fly the sequence without practice. In the Primary category the pilots will fly the **KNOWN** sequence three times. In the Sportsman category the pilots will fly the **KNOWN** sequence for their first flight and may fly a **FREE** sequence for their second and third flight. Only pilots in the top three categories fly **UNKNOWN** sequences for their third flight. During some competitions pilots in the Advanced and Unlimited categories may also fly a **4-minute free** sequence which may be accompanied by music and feature aircraft smoke.

Once each competitor is cleared into the box by the Chief Judge the pilot will wag the wings to indicate that he/she is ready to perform. Each aerobatic figure begins in horizontal flight, either upright or inverted and ends in horizontal flight, upright or inverted. Figures in the Primary category are usually basic figures such as loops and rolls and spins. All figures in the Primary category are positive G figures as many aircraft flown in Primary competition do not have fuel and oil systems that can operate in negative G flight (i.e. with the pilot suspended by his seat belt and shoulder harness). At the higher levels the figures are more complex and the basic figures are made more difficult by adding one or more complementary figures and negative G flight is often required. The illustration below shows typical looping figures that might be flown at each level of IAC competition with their associated difficulty or "K factor" in parentheses. Figure one is a simple loop, a typical Primary figure. (K=10) Figure 2 is a loop with a full roll at the top, a typical Sportsman figure. (K=18) Figure 3 has a snap roll at the top of the loop, a typical Intermediate figure. (K=21) Figure 4 has one and a half snap rolls at the top and the second half of the loop is an outside or negative G maneuver with an inverted exit, typical of an Advanced category figure. (K=26) Figure 5 is an outside loop with two negative snap rolls on top and an inverted exit, typical of an Unlimited category figure. (K=35)



A score of 10 is given for a perfect figure and points are deducted for deviations from that perfect figure. The judges' scores are averaged and multiplied by the difficulty (K) factor for each figure. At the end of the competition awards are given to the top three pilots in each category.

There are dozens of aircraft types that may be seen in aerobatic competition. Some are described below:



**Piper J-3 Cub**



**Decathlon 8KCAB**



**Van's RV-8**



**Pitts S1**



**DR-107 One Design**



**Extra**

The **J-3 Cub** was built between 1937 and 1947 by Piper Aircraft. The Cub is one of the best known light aircraft of all time. Its simplicity, affordability and popularity as well as large production numbers, with nearly 20,000 built in the United States, invokes comparisons to the Ford Model T automobile. The Cub was originally intended as a trainer and had great popularity in this role and as a general aviation aircraft. Many cubs have been modified by shortening the wing by about 81 inches. Many other modifications have made the "clipped wing Cub" a potent competitor in the Primary and Sportsman levels of IAC competition. The aircraft's standard chrome yellow paint has come to be known as "Cub Yellow" or "Lock Haven Yellow".

The American Champion **8KCAB Decathlon and Super Decathlon** are two-seat airplanes capable of sustaining aerobatic stresses between +6G and -5G. The Decathlon entered production in the United States in 1970 as a more powerful and stronger complement to the American Champion Citabria line of aircraft. While the Citabria designs remain successful, and the introduction of the 7KCAB variant of the Citabria had added limited inverted flight capability, the Citabrias are not capable of outside maneuvers, those requiring significant negative-g loads. Pilots wanted an aircraft capable of more maneuvers, and Champion introduced the 8KCAB Decathlon in response to this demand. Citabrias are often seen in the Primary category. Decathlons are seen in Primary to Intermediate categories.

**Van's Aircraft** is an American kit aircraft manufacturer, founded by Richard "Van" VanGrunsven in 1973. Van's RV series of aircraft, from the single-seat RV-3 to the latest RV-14, are all-aluminum, low-wing monoplanes of monocoque construction. The RV series of airplanes has been extremely successful, and well over 10,000 RV kits have been completed and flown and thousands more are under construction. Several models of the RV are capable of aerobatic flight and have proven to be successful IAC competitors in the Primary through Intermediate levels of competition.

The **Pitts Special** is a series of light aerobatic biplanes designed by Curtis Pitts which have accumulated many competition wins since its first flight in 1944. The Pitts biplanes dominated world aerobatic competition in the 1960s and 1970s and, even today, remain a potent competition aircraft in the lower categories and are occasionally flown in the Advanced and Unlimited categories by skilled pilots. Both single seat and 2-seat versions of this popular airplane are often seen in IAC competition.

The Rihn **DR-107 One Design** is an aerobatic homebuilt aircraft that was designed by Dan Rihn and first flown in 1993. The aircraft is supplied by Aircraft Spruce & Specialty of Corona, California in the form of plans and a materials kit for amateur construction. It is normally powered by a 4-cylinder, air cooled aircraft engine. The airframe is stressed to +/- 10 Gs. The DR-107 was designed as a low-cost one design aircraft for competition and can be seen at all levels of IAC competition.

The **Extra Aircraft** Company was established in 1980 by Walter Extra, an aerobatic pilot, to design and develop his own aerobatic aircraft. The company is located at Dinslaken airfield in Hünxe, North Rhine-Westphalia, Germany. Production of aircraft is about three units per month. There are single seat and 2-seat models of the Extra, powered by six cylinder engines and capable of +/- 10 Gs. These aircraft are typical of the low wing, high powered monoplanes which have dominated the upper classes of competition in recent years.

**The IAC is the World's largest aerobatic club, promoting and enhancing the safety and enjoyment of aerobatics.** Membership is offered to anyone who shares that interest. While many of our members are aerobatic competitors others volunteer at contest events and many just enjoy being a part of an exciting and rewarding sport. Members receive Sport Aerobatics monthly magazine and may participate in the many activities offered by nearly 40 regional chapters. **More information is available at [IAC.org](http://IAC.org)** including contact information for your local IAC chapter and nearby aerobatic training facilities.

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**Caution:** The flight line can be a dangerous place. Please ask for permission to venture out onto the flight line. You may be required to have an escort. Children are never allowed on the flight line without supervision.

**Note:** Most aircraft are easily damaged by miss-handling. Please do not touch the aircraft without the approval and under the supervision of the aircraft owner.