Introducing the IRCHA Cup – A New Era of RC Helicopter Competition

For years, the IRCHA Jamboree has brought the RC helicopter community thrilling 3D competitions featuring top-tier pilots. From the unforgettable days of "The One" to the more recent "Battle of the Brands," the excitement has been nonstop. Now, in 2025, we're thrilled to unveil the next evolution in RC competition: The IRCHA Cup.

This new format puts the focus back where it should be; on the pilots. Inspired by the legendary XFC competition, the IRCHA Cup highlights individual skill and performance, bringing RC helicopter flying back to its roots.

To facilitate a competitive experience with clarity, the judging criteria have been refined to clearly align the expectations of competitors and judges, resulting in objective, fair, and consistent scoring.
Competition Classes:

- **Expert Class:** Open to all, limited to 15 entries.
- **Masters Class:** Featuring 10 of the best—invited pilots and some selected from applications. The 10th spot is awarded to the winner of the Expert class!

Rules and Judging Criteria

There will be **five judges**, each scoring the following elements on a scale from **1 to 10 in 0.5 increments**. To help ensure fairness and reduce the impact of potential bias, we will use a special app that employs the following scoring methodology:

Z-Score

Z-score normalization, also known as standardization, transforms a dataset to have a mean of 0 and a standard deviation of 1. This is achieved by subtracting the mean from each data point and then dividing by the standard deviation. The resulting z-scores indicate how many standard deviations a data point is away from the mean.

Min-Max + Winsorization

Winsorization is a statistical technique used to mitigate the impact of outliers by replacing extreme values in a dataset with less extreme values from within the same dataset. Instead of removing outliers, winsorization effectively "caps" them by setting them to the value of a specific percentile, like the 5th or 95th percentile.

Yellow Card Rule

During the competition, each pilot has the option to invoke a yellow card, which allows for a re-flight under specific conditions. This is intended as a safety net for those who crash early due to mistakes or equipment failure.

Here's how it works:

- The yellow card can only be used if the pilot crashes within the first minute of their flight.
- If the crash happens after the one-minute mark, the yellow card cannot be used.
- Once the yellow card is pulled, the pilot must be ready to fly again immediately after the next pilot in the flight order.
- The yellow card can only be used once.

Example:

Pilot A crashes at the 45-second mark and uses their yellow card for a retry. Pilot B flies as scheduled, followed by Pilot A's rerun flight.

This system gives pilots a fair second chance without disrupting the flow of the competition.

Additional Rules

- All pilots must have a spotter; the spotter is in charge of signaling the line judge the start of the music and start of the flight (when judging begins).
- When the spotter drops the hand, the music begins.
- When the spotter drops the flag, the flight begins (judging begins).
- If the music has an intro, judging still begins with the drop of the flag, not when the helicopter lifts off. Plan accordingly.
- Crossing the safety line at any time results in an immediate score of zero (0) and no yellow card will be allowed in this case.

Expert Class Specific Rules and Judging Criteria

- Pilots are encouraged to fly to music as background noise and for effect and entertainment purposes, but they will not be judged on choreography. Do not try to follow the beat or fly to music if this will be detrimental to your overall flight as you will not be scored based on choreography.
- Maximum flight time is 2:30 minutes.
- The flight must begin at the spotter's signal—this is when the timer officially starts (see Additional Rules above).
- Pilots who land more than 10 seconds early or late (i.e., before 2:20 or after 2:40) will receive a 20% deduction from their total score.
- If a pilot wins the Expert Class, that pilot is automatically required to enter and fly in the Masters class. All Expert class pilots are expected to arrive to the competition with enough helicopters/batteries to compete in the Masters class if they are the winner.

Technical Element (20% of score)

The judges will score based on the "technicality" of maneuvers during the flight. A "technical" maneuver is defined as a maneuver that requires multiple inputs at the same time. This is highly subjective as anything related to RC helicopters, but obvious to the trained eye. For example, a Big Ben or pirouetting globe is far more technical than a basic tail down tic-toc. Simple flips, rolls, loops and other basic maneuvers are not considered "technical" whereas a more intricate maneuver, such as a rolling circle is considered more technical. A simple rolling circle with a reversal whether a figure eight reversal or any other variation is considered more "technical" than a basic rolling circle.

Examples of non-technical maneuvers:

- Loops
- Rolls
- Flips

Examples of slightly technical, more complex maneuvers (higher points):

- Perfectly executed piroflips
- Rolling circles
- Pirouetting loops

Examples of highly technical maneuvers:

- Piroflips with reversals
- Piroflips with rotation in the flipping axis (chaos)

Symmetry, centering and precision (30% of score)

There are many pilots capable of executing difficult maneuvers, but the execution of such a maneuver in a controlled manner is what shows ultimate control and mastery of the maneuver. For example, a simple hurricane can be executed by most 3D pilots, but a perfect hurricane centered in front of the pilot with constant altitude and speed is harder to achieve. Another example would be a simple piroflip, if the piroflip is performed, it doesn't mean it can be performed in front of the pilot, without much drift and without losing or gaining altitude. Maneuvers are intended to look in a certain way and in control. This part of the judging criteria covers the symmetrical aspect as well as the intended location and precision of the maneuver being executed as well as the smoothness of the maneuver. It is very important to differentiate smoothness from how hard or aggressive the maneuver is executed. A maneuver could be executed with speed and aggression and look sloppy, so in this case it is better to execute the maneuver a bit slower and with better control to make it look smooth.

As a competition pilot, you must consider this element very carefully. If you do a lot of technical maneuvers and they look somewhat sloppy, you'll score higher on the technical element, but very low on this element. It is important to find a good compromise between technicality (difficulty) and precision to get the best score on both elements.

Overall presentation of the flight/routine (30% of score)

This is a very subjective area of the judging criteria as it is one of those that a judge cannot simply score based on an objective observation, but more on "emotion". Was the flight put together right? Did the pilot start flying to some genre of music and did the same thing for the entire flight or were there highs and lows? Were the highs exciting and the lows in place to allow the audience to prepare for the next high? This is 100% related to the "emotional" aspect of the flight. There have been many flights during competitions in the past that have brought tears to judges eyes, whether because the choice of music was incredible or because the helicopter did something spectacular after a cool down period, or simply because the ending was amazing. These are all elements of the presentation.

Display and scope of the flight envelope (10% of score)

Most pilots prefer a certain flying style. For example, Tareq Alsaadi is very fast, aggressive, high head speed and upbeat whereas some pilots in Germany prefer low head speed, more precise and technical maneuvers. This aspect of the judging criteria emphasizes the importance of diversity. Being able to showcase a wide variety of flying rhythms is what makes a good pilot different from a great pilot. Can the pilot fly low? Can the pilot fly high? Can the pilot go fast and then slow? Is the mood of the flight changing based on the music and throughout the flight or does the flight feel "repetitive"? A repetitive flight doesn't necessarily mean the pilot is repeating the same maneuver, but it means the "mood" of the flight is not changing. Going high, doing big air, then smack and low, fast and slow are attributes of a great pilot.

Creativity (10% of score)

This aspect of the judging criteria has to do with the overall creativity of the pilot. Is the pilot doing something special or out of the ordinary? Did the pilot do a "trick" never seen before? I am sure some of you remember Kyle Stacy's flight at the One competition during IRCHA years ago where he deployed a parachute from his helicopter. This is all part of the creativity aspect of the flight. Another part could be a maneuver executed to a song or even a simple blade stop executed to the music. Anything that seems creative qualifies for this part of the judging criteria.

Masters Class Specific Rules and Judging Criteria

- Pilots must fly to music, with choreography playing a significant role in the overall score.
- Maximum flight time is 3:00 minutes.
- The flight must begin at the spotter's signal—this is when the timer officially starts (see Additional Rules above).
- Pilots who land more than 10 seconds early or late (i.e., before 2:50 or after 3:10) will receive a 20% deduction from their total score.

Technical Element (20% of score)

The judges will score based on the "technicality" of maneuvers during the flight. A "technical" maneuver is defined as a maneuver that requires multiple inputs at the same time. This is highly subjective as anything related to RC helicopters, but obvious to the trained eye. For example, a Big Ben or pirouetting globe is far more technical than a basic tail down tic-toc. Simple flips, rolls, loops and other basic maneuvers are not considered "technical" whereas a more difficult maneuver, such as a rolling circle is considered more technical. A simple rolling circle with a reversal whether a figure eight reversal or any other variation is considered more "technical" than a basic rolling circle.

Overall presentation of the flight/routine (20% of score)

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Choreography (30% of score)

The name says it all, but what is really choreography? There are two ways to approach flying to music. You can fly "with the music" or you can fly "to the music". Some pilots take advantage of the beat and fly to it! For example, a techno type song with a steady beat could be flown to pirouetting tic-tocs, this is great, but on the other hand, choreography is not all 100% related to flying to the beat; flying to the tone, speed and emotion of the music is important too. Some pilots prefer to speed up or slow down their flying style based on the mood of the music and this is also part of the choreography aspect of the flight.

Creativity (20% of score)

This aspect of the judging criteria has to do with the overall creativity of the pilot. Is the pilot doing something special or out of the ordinary? Did the pilot do a "trick" never seen before? Anything never seen before adds to the creativity element of the judging score.

Crowd Participation (10% of score)

Judges will consider the crowd's reaction following each flight. Based on the intensity of applause and cheering**,** and at the judges' discretion, a score from 1 to 10 will be awarded to reflect overall crowd enthusiasm.