PRINCIPLES

The Red Bull Air Race World Championship is an international series of races with the participation of at least ten pilots at each race. The objective is to navigate an aerial race track featuring air-filled pylons in the fastest possible time incurring as few penalties as possible. Pilots can win World Championship points at each race and the one with the most points after the last race of the season becomes the Red Bull Air Race World Champion.

PILOTS

In 2010, 15 pilots will take part in the Red Bull Air Race World Championship. New pilots who wish to participate in the World Championship must first fulfil the minimum criteria set by the Red Bull Air Race Committee which include top achievements in international flying competitions organized by the FAI. They must also be active aerobatic air show display pilots. Eligible pilots then have the opportunity to prove their skills at the Red Bull Air Race Qualification Camp where they can achieve the ‘Red Bull Air Race Super License’. Once they have the Super License they then qualify to take part in the Red Bull Air Race World Championship.
RACE FORMAT

The Red Bull Air Race consists of the following flying sessions: Training, Qualifying, Wild Card, Top 12, Super 8 and Final 4. In all sessions, only one pilot races in the track at any time.

TRAINING: Takes place on the days preceding Qualifying Day. There are two training days each consisting of two training sessions. Pilots must take part in at least two mandatory training sessions. Time of final training session (training 4) determines the starting order for Qualifying.

QUALIFYING: Takes place on Qualifying Day, the day before Race Day. Includes two mandatory qualifying sessions. Best time counts. One World Championship point is awarded to the fastest pilot in Qualifying.

WILD CARD: Takes place on Race Day. The five slowest from Qualifying compete for the two available places in the Top 12. Results in the Wild Card determine 13th to 15th place race positions.

TOP 12: Takes place on Race Day. The fastest ten from Qualifying and the fastest two from the Wild Card compete for a place in the Super 8. Results in the Top 12 determine 9th to 12th place race positions.

SUPER 8: Eight fastest from Top 12 compete in the Super 8. The fastest four pilots advance to the Final 4. Results in the Super 8 determine 5th to 8th place race positions.

FINAL 4: Four fastest from the Super 8 compete in the Final 4 for 1st, 2nd, 3rd and 4th place race positions.

STARTING ORDER FOR FLYING SESSIONS

The starting order is the order in which the pilots will race in each flying session. The starting order for Training is defined by the results of the 2009 Red Bull Air Race World Championship standings. The highest ranking pilot from 2009 starts first. Starting order for new race pilots is determined by a draw. The starting order for Qualifying is defined by the results of the fourth training session. The order is reversed so that the slowest pilot from the fourth training session starts first. The starting order for all sessions on Race Day is determined by the results in Qualifying. The order is reversed so that the slowest pilot from Qualifying starts first.

RACE TRACK

The total length of the race track is approximately 5-6 kilometres (3-4 miles). It consists of a series of inflatable pylon pairs known as ‘Air Gates’. Pilots must fly the race track, through the Air Gates in a predefined order and way as follows:

Level (horizontal) flying through the start Air Gate (black and white chequered). This Air Gate is also used during the race and as the finish gate – for this use, level flying is not mandatory.

Level (horizontal) flying through Air Gates marked in blue.

Knife (vertical) flying through Air Gates marked in red.

Slalom flying through the Chicane (marked in red). The Chicane consists of two or more single pylons positioned in a line. Pilots can choose to fly narrow or wide through them (knife or level flying not mandatory).

Knife flying through the Quadro. The Quadro consists of four pylons positioned in a square (marked in red).
TIMING

The timing is activated when the race plane crosses the start line and is stopped when it passes the finish line. The system that measures the run times is unique and different to conventional systems. It measures three-dimensionally and a thousand times per second in a defined area. The system consists of several laser devices placed at the start/finish and at the Air Gates where intermediate times are measured. The laser spans a two-dimensional vector space between the Air Gates with an angle of 100° and a reach of 80 metres (262 ft) in longitudinal sides. Whenever a pilot crosses the invisible laser wall, the system detects a crossing and calculates the respective time. After finishing the track, the system computes the run-time based on all measuring results. The start/finish laser system is backed up with a second laser device.

THE AIR GATES

Each Air Gate is 20 metres (65 ft) high. The gap between the pylons in the Knife Air Gates is 10 metres (33 ft). The gap between the pylons in the Level Air Gates is 13 metres (42 ft). The gap between the pylons in the Chicane is 110 metres (360 ft). A plane’s wingspan is approximately 8 metres (26 feet).

RACE STEWARDS

The Race Stewards make sure the pilots have made the correct Air Gate crossings and have executed the race track correctly. The Race Stewards are a panel of highly experienced stewards and are well known figures in the aviation world. The panel consists of five Stewards: Head Steward, Assistant Steward, TV Steward and two outside Stewards. The time penalties are assigned by the Head Steward. Race disqualification is decided by the Race Director.

WEATHER

In the event of bad weather e.g. very high winds (base wind must not exceed 44.5 km/h or gusts above 55.5 km/h), bad visibility or heavy rain, the race committee reserves the right to skip, delay or cancel flying sessions.

RACE WINNER

The winner is the pilot who is ranked number one in the final flying session.

RED BULL AIR RACE WORLD CHAMPION
The Red Bull Air Race World Champion is the pilot who achieves the highest aggregate score in the given Red Bull Air Race World Championship season. The winner is crowned Red Bull Air Race World Champion at the last stop in the World Championship.

**WORLD CHAMPIONSHIP POINTS**

World Championship points are awarded after each race and will decide the Red Bull Air Race World Champion at the end of the season. The point system is as follows:

**Qualifying**

1st Place 1 point

**The Race**

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<tr>
<th>RANK (RACE)</th>
<th>POINTS</th>
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<tbody>
<tr>
<td>1st place</td>
<td>12 points</td>
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<td>2nd place</td>
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<td>15th place</td>
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**PENALTIES AND DISQUALIFICATION**

Pilots are required to complete the track and fly through the Air Gates following a predefined race track. Failure to do this correctly results in penalty seconds being added to their race time. For more serious breaches of the rules, pilots can also be disqualified.
PENALTIES

Penalty seconds can be added to the pilot’s time as follows:

- Not emanating smoke during race
  A 1-second penalty is incurred if the race plane is not emanating smoke throughout the required time (from ‘smoke on’ call until passing the finish gate). This penalty is given whether a technical problem is ascertained or not.

- Incorrect passing of an Air Gate
  A 2-second penalty is incurred for:
  - “Too High”
  - “Incorrect Level Flying”
  Flying through a Start/ Finish Gate (1st pass) or a Level Gate and exceeding the described angle of bank.
  - “Incorrect Knife Flying”
  Flying through a Knife Edge Gate and exceeding the described angle of bank or turning to the wrong side (Knife Edge left or right).

- Exceeding the maximum entry speed
  A 2-second penalty is incurred when a pilot exceeds the maximum entry speed of 370 km/h through the start gate (between 371-380 km/h).

- Touching an Air Gate
  A 6-second penalty is incurred when a pilot touches an Air Gate with any part of the plane (if considered dangerous it could result in disqualification).

DISQUALIFICATION (DSQ)

Pilots can be disqualified for any of the following:

- Dangerous Flying
  - any form of dangerous flying
  - flying too low
  - crossing the safety line
    - exceeding the maximum G load factor of 12G

- Not Flying the Track
deviation from the predefined race track

- Exceeding the start speed limit of 381 km/h through the start gate.
- Not fulfilling the minimum pilot weight restriction of 82kg including compensation weight (-2kg tolerance).

**DID NOT START (DNS)**

If a pilot misses his slot for whatever reason, he is not permitted to take part in the race and it is recorded as a DNS.

Exception: Only during Training, pilot may start at the end of the respective Training session, provided he is offered a Slot by the Race Director. It is at the discretion of the Race Committee to offer such additional Slot or not, depending on the overall time schedule of the Training session.

**SAFETY CLIMB OUT (SCO)**

If a pilot decides at his own discretion to discontinue flying the Race Track due to safety reasons and he communicates immediately via radio the wording “Safety Climb Out” or obviously discontinues flying in the Race Track because of safety reasons, it is recorded as "Safety Climb Out". SCO has the same consequences as “Disqualified” with respect to participation in the Flying Sessions.

**DID NOT FINISH (DNF)**

If a pilot decides at his or her own discretion to stop flying the Race Track due to other reasons than mentioned under Safety Climb Out (SCO) it is recorded as "Did not finish". DNF has the same consequences as "Disqualified" with respect to participation in the Flying Sessions.

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