THE WORLD AIR SPORTS FEDERATION

EMIRATES AEROSPORTS FEDERATION

FAI World Air Games Dubai 2015

1-12 December, 2015
Dubai – United Arab Emirates

GLIDER MATCH RACING RULES

Edition: Nov 5, 2015 **Publication:** Nov 5, 2015 **Valid From:** Dec 1, 2015

Rules for the Gliding Event at the Dubai World Air Games

1. Introduction

Since the gliding event at the World Air Games, to be held in Dubai from 5th to 9th December 2015, has to take place in limited airspace, in which there are no thermals at this time of the year, it will be impossible to run a conventional gliding competition with cross country flights. The IGC therefore developed a new type of competition called “Glider Match Racing (GMR)”, which is based on speed races between two pilots flying two identical gliders simultaneously on the same short task. The competition will be run as a tournament with a qualification round, semi finals and a final.

2. Concept of Glider Match Racing

2.1 Definitions

A **race** is a pair of flights, flown simultaneously. It is a competition between two pilots flying two gliders of the same type and in the same configuration, at the same take-off weight and with the same equipment. After having been launched simultaneously, the pilots will start at the same altitude and at (nearly) the same time and complete an assigned task in the shortest time. The task is set in such a way that it can be achieved without thermals, that the pilots cannot exceed the maximum allowable speed of the gliders, and that spectators can watch it during the whole race. To do well requires accurate control of the aircraft and a great familiarity with the capabilities of the glider.

A **match** is a series of 2 or 3 races between two pilots. The winner of the match will be the pilot who wins 2 races out of a maximum of 3. (i.e. there will be only two races if one pilot wins the two first races but there will be a third race to break the tie if each pilot wins one of the two first races).

2.2 Tournament

A maximum of 6 pilots will be invited. The tournament will be run in three stages:

- a qualification round
- two semi finals
- a final and a consolation final

The qualification round will be run as a “round robin” (i.e. all pilots will race against each other). After the round robin a ranking will be established as a function of the number of races won by each pilot.

After the qualification round two semi finals will be run between the pilots ranked at the first four places. The pilot placed first during the qualification will compete in a match against the pilot ranked at the fourth place while the pilot ranked second will compete in a match against the pilot ranked third.

After the semi finals a final will take place as a match between the two winners of the semi finals. A “consolation final” for the third place will also be organized between the two losers of the day.

3. Gliders

Two identical Discus 2C 18m gliders registered F-CFDU (EI) and F-CFDV (EV) will be made available for the competition. They are nearly identical since, when they are empty, they have nearly the same empty weights (288.6 and 290.9 kg) and nearly the same position of center of gravity (X0 = 265 m and X0 = 0,266 m). Before each race the take off mass and the position of the center of gravity will be adjusted to the same value regardless of the weight of the pilots by using a chart established by the manufacturer. In practice this will be achieved by mounting lead plates in the nose of the gliders. Both gliders have the same equipment including an LX NAV S80 computer and an IGC Flarm Mouse. It is planned to also add a Oudie in each glider for a better graphic display of the task. The user manuals of the S 80 and of the Oudie can be downloaded here:
http://www.lxnav.com/download/manuals.html

The gliders will fly dry during the qualification round but if possible they will be ballasted to the same MTOM during the semi finals and the finals in order to make the finishes more spectacular.

4. Site

The competition will take place at the Skydive Dubai Desert Campus
Co-ordinates: 24° 53.121' N, 55° 32.846' E
Elevation: 158 m MSL

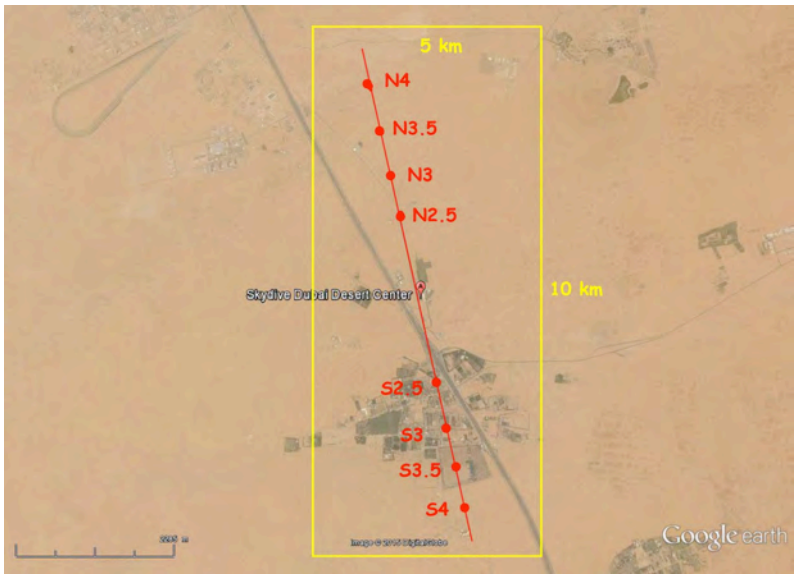
The runway is 1580 meter long, 20 meter wide, and its direction is 347° TRUE.
In order to simplify the following description of the task we will assume that the orientation is N/S

5. Task setting

The contest area is a 5x10 km rectangle centered on the middle of the runway, whose biggest length is oriented N/S.

The following turn-points with a 500 m radius will be defined on the extension of the runway axis to edges of the contest area.

- N2.5, N3, N3.5, N4, located on the North side at respectively 2.5 km, 3km, 3.5 km and 4 km from the centre of the runway and
- S2.5, S3, S3.5, S4, located on the South side at respectively 2.5 km, 3km, 3.5 km and 4 km from the centre of the runway.



The Start Line will be a 1km long line, perpendicular to the axis of the runway, and centered on a point with the following co-ordinates: 24° 53.243'N, 55° 32.792'E

The Finish Line will be a 120 meter long line, also perpendicular to the axis of the runway and centered on the same point.

The coordinates of all these points will be stored in a turn-point file and uploaded to the flight computers and to the flight recorders of the two gliders.

The task will consist in crossing the start line, then rounding one point selected by the organizers among the North points, then flying back to one of the South points then flying again to one of the North points and finally, crossing the finish line. For safety reasons, the first leg must always be to the North, so that, with 3 turning points, the gliders will arrive from the North before crossing the finish line (this prevents having finishers flying low over the highway).

The length of the task will be adjusted during the practice day by selecting the turn-points in such a way that the gliders can easily achieve the task but cannot have enough energy

margin to fly too fast. The tests performed in Varese showed that for a start altitude of 1000 meters AGL a distance of 25 km (i.e. corresponding to a glide ratio of 1 to 25) is adequate.

6. Race Procedures

6.1 Launch

The gliders shall be towed onto the main runway from a position in front of the apron, one after the other and the second launch shall be performed as soon as possible after the first one.

The glider being launched first shall be called "WHISKY". The glider being launched second shall be called "ECHO".

The two tow-planes shall fly in such a way that they will arrive in loose formation from the South of the airfield at the same altitude (1300 meters AMSL), at a distance of approximately 2 km from the airfield. The formation shall be aligned on the axis of the runway and the tow plane towing WHISKY shall fly on the left hand side of the formation (i.e. West of the axis of the runway) while the tow plane towing ECHO shall fly on the right hand side (i.e. East of the axis of the runway).

At the command of the tow master, both gliders shall release simultaneously and glide straight to the start line).

6.2 Start

Both gliders shall cross the start line in the same right hand and left hand positions in which they released. Since they had the same energy after the release, there will be no start altitude limit and the start speed shall only be limited to the Vne (see para 6.5)

After crossing the start line both gliders shall fly directly towards the first turn-point of the task.

6.3 Turn-points

Both gliders shall turn the same turn-points but at each turn-point glider WHISKY shall turn to the west and glider ECHO shall turn to the east. Non-compliance shall be penalized (disqualification for the race). Missing a turn-point shall also be penalized (disqualification for the race).

6.4 Finish

After having rounded all the tasks, the gliders shall cross the line. A minimum altitude of 30 meters AGL shall apply from the last turn point to the finish line. Therefore flying below 188 meter AMSL between the reporting point and the finish line, including when crossing the line, shall be penalised with a tolerance of 5 meters (the penalty will be calculated at the lowest point and will be equal to 2s per meter below 188 - 5 = 183 meter AMSL) .

When making a speed finish, glider WHISKY shall cross the line on the western part while glider ECHO shall cross it on the eastern part. Non-compliance shall be penalized as dangerous flying (disqualification for the race).

Notwithstanding the previous paragraph a pilot having not enough energy to cross the line may land directly after having announced his intention on the radio without being penalized for dangerous flying. His finish shall be considered as valid but he shall be penalized for the missing altitude.

6.5 Speed limit
For safety reasons the ground speed will be measured during the race and a pilot exceeding the Vne of the 18 meter Discus (280 km/h) shall be penalized (disqualification for the race).

For safety reasons a pilot exceeding the maneuver speed of the 18 meter Discus (190 km/h) during the time he is in the observation zone of a turn-point shall be penalized (disqualification for the race).

6.6 Landing
After passing the finish line both gliders shall land by joining the landing pattern on the western side of the runway. The pilot who crosses the finish line first shall also land first, land long and roll out on the apron so that the wings do not touch the edges of the runway which are not very "glider friendly".

Dangerous flying shall be penalized (disqualification for the race).

If after crossing the line a pilot does not have enough energy to make a standard landing pattern shall land directly after having announced his intention.

6.7 Scoring
The flights records shall be checked in (almost) real time by analyzing the flight records provided by the IGC Flarms. They will have a time interval of 1 second.

The altitude taken into account for analyzing the flight shall be the pressure altitude measured by the flight recorder corrected by an offset value such that the altitude on ground before takeoff is equal to the elevation of the airfield. No correction of the measured altitude with the calibration chart of the flight recorder shall be performed.

The start time of each glider shall be measured by interpolation between the last fix before the crossing of the start line and the first fix after crossing the line.

The finish time of each glider shall be measured by interpolation between the last fix before the crossing of the finish line and the first fix after crossing the line.

The winner of the race shall be the pilot having covered the distance from the start line to the finish line via all turn-points in the shortest time (the time taken into account is the difference between the time of crossing the finish line and the time the glider crossed the start line plus any time penalties.

7. Tournament procedures

7.1 Qualification rounds
Assuming there are 6 participants named A,B,C,D,E and F, the round robin shall be organized in such a way that every pilot will fly every day but never fly twice in a row. This shall be achieved with 3 qualification rounds with the following races:

Qualification round 1:
A against B , C against D , E against F , B against C , D against E
Qualification round 2:
D against F , A against C , B against D , A against E , C against F
Qualification round 3:
C against E , B against F , A against D , B against E , A against F

The correspondences between the letters A,B,C... and the names of the pilots will be drawn by lots before the first qualification round.

The winner of each race shall get one point and the loser, zero points. Should both pilots be disqualified, no points shall be awarded.

The gliders the pilots will fly for each race as well as the order in which they will take off (linked to the side they will fly) shall be drawn by lots.

At the end of the round robin, a ranking shall be established as a function of the total number of points attained by each pilot. If there is a tie for any of the first four places, the tie shall be broken by taking into consideration the result of the race between the two pilots. If this is not sufficient to break the tie, an additional race shall be run between the two pilots.

7.1 Semi finals

The pilot placed first during the qualification shall compete in a match against the pilot ranked at the fourth place while the pilot ranked second shall compete in a match against the pilot ranked third. If enough time is left a "consolation final" shall be organized between the pilots respectively ranked at place five and six.

If possible the gliders will be ballasted to make the finishes more spectacular.

For the first race of each match the gliders the pilots will fly, as well as the order in which they will take off shall again be drawn by lots . For the second race the pilots shall swap their gliders and reverse the launching order. If a tie break is required the gliders as well as the order in which they will take off shall again be drawn by lots.

7.2 Finals

On the last day of the competition a “consolation final” for the third place shall first be organized first as a match between the two losers of the semi finals.
Then the final shall take place as a match between the two winners of the semi finals.

If possible the gliders will be ballasted to make the finishes more spectacular.

.For the first race of each match the gliders the pilots will fly, as well as the order in which they will take off shall again be drawn by lots For the second race the pilots shall swap their gliders and reverse the launching order. If a tie break is required the gliders shall again be drawn by lots.

8. Schedule.
According to the time slots we have received, the schedule will be as follows:

3 December	14:00 – 17:00	Practice
4 December	14:30 – 18:00	Qualification round 1
5 December	10:00 – 14:00	Qualification round 2
6 December	13:00 – 17:00	Qualification round 3
7 December	13:00 – 17:30	Semi Finals + Consolation final
8 December	13:00 – 16:00	Final + Consolation Final
9 December		Reserve Day + Prize Giving Ceremony

9. Medals
The winner of the gliding event will be declared Winner of the Gliding Championship at the World Air Games 2015 and be awarded the Gold Medal.

The pilots placed respectively second and third will be awarded the silver and the bronze medals.

10. Protest
The WAG IGC Liaison Officer will adjudicate any protests.