**ANNEX 4C CLASS F2C - TEAM RACE PANEL OF JUDGES GUIDE.**
**WEF 1st January 2017.**

This Panel of Judges (hereafter 'Judges') Guide is intended to guide the Team Race judges and competitors to produce a fair and enjoyable competition. The guide is a reflection of the current consensus interpretation of the Sporting Code F2C rules. Suggestions for amendments to Sporting Code rules or this Guide are welcomed by the F2 Subcommittee and will be considered at the appropriate CIAM Plenary meeting.

4.C.1. **TEAM RACE JUDGES.**

The judges must have a working understanding of a common language to reduce delays and errors. It is recommended that the common language be the same language used to issue warnings and disqualification.

4.C.1.1 The duty of the judges is to assure a fair competition between the teams by penalizing any defined actions which would be an advantage for one or a disadvantage for another team. Where ever possible the judges should help the teams achieve their best result by discussion outside the actual racing.

4.C.1.2 The judges responsibilities regarding the conduct of the racing (issue of warnings, disqualifications and re-flights) begin with the start signal. However, the judges assist the Circle Marshall by checking that other aspects of the contest are in accordance with the rulebook. Examples of this are:

a) All mechanics wearing helmets.

b) Correct application of the 90 seconds' warm-up and 30-second countdown.

c) Competitors' unauthorised practice in the official circle.

Infringements should be noted, for the Circle Marshall to rectify.

4.C.1.3. The judges should allocate among themselves the specific tasks of warnings operation, microphone use and record keeping prior to the actual racing. They should also practice working together when observing the official practice flights and by viewing videos from recent championships. It is highly recommended that a video recorder to monitor the pilots and the pilot circle is situated in the Judges tower. This "official" video record is not be used by the judges to make decisions whilst the race is in progress but may be reviewed at the conclusion of the race to decide whether re-flights are warranted or to review a formal complaint. After the end of each round of racing the competitors may be granted access to the "official" video. The purpose of the "official" video is for:

a) Viewing by the judges and the FAI Jury following a complaint or protest. (NOTE: The FAI jury is not limited to viewing the official video only when considering protests).

b) Review by the judges to improve their coordination.

c) Viewing by teams with the judges for a better all-round understanding**.**

d) Training of other judges in preparation for subsequent championships.

4.C.1.4. It is recommended that the judges adopt the following procedure for the races:

a) Before the start each judge selects one team (preferably, not his nationality) to watch the start and during pit stops. The specific items to check for are starting the model's engine(s) before the start signal; landing model outside the 19.6m radius flight circle; mechanic retrieving the model from inside the 19.1m radius circle; handle significantly off ground; etc. A judge's decision in these cases is unilateral and, without discussion, and the appropriate penalties must be given. Any single judge making these unilateral decisions needs to be aware that because the judges are operating from a fixed location it may not be possible to view each situation equally, therefore he must be certain that he makes his decision on the grounds of real safety, advantage, disadvantage situations and not a minor technical infringement that can only be seen by virtue of position.

b) For the remainder of the race all three judges should observe all three pilots and conduct a running commentary of their behaviour to allow them to agree on infringements quickly. The judges are also responsible for observing the models in flight should any collisions occur. Warnings/disqualifications are issued when two judges are in verbal agreement.

c) The judges are responsible for clearly announcing the warnings, disqualification, and re-flight decisions immediately.

4.C.1.5. Competitors who feel they have not received a fair result are encouraged to initially make a complaint to the F2C judges, if this is does not satisfactorily resolve the issue then the competitors have the right to make an official protest.

4.C.1.6. Warnings are effective at the lap or race time when the infringement occurs. Pilots are expected to acknowledge the warning appropriately. Failure to rapidly correct the infringement will risk an additional penalty for same offence.

4.C.1.7. Warnings should be given using short standard phrases wherever possible (see Section 4.C.5). Warnings are issued with reference to the team's racing colour, not their name, and additional verbal communication from the judges should be kept to a minimum to prevent pilot distraction.

4.C.1.8 As there can be variations in the actual marking out of the various circles, the Judges shall be responsible for checking the accuracy of these before the start of the contest. They shall then be responsible for informing all competitors prior to the beginning of the contest, the definitions of inside and outside the line that will be applied in that particular competition. In all cases the definition of "outside/inside the line" shall be the one that encourages the natural progress of the race without causing a genuine safety, advantage or disadvantage situation. (See pictures in section 4.C.4 below)

4.C.2. **STANDARDS OF JUDGING**.

4.C.2.1. A contest consists of 3 distinct sections: qualifying heats, semi-finals, and final. Each section poses unique problems for the judges and competitors.

The judges shall observe the official practice and conduct a briefing for all competitors before the first qualification heats or semi-finals start, and also before the final, in order to attempt to maintain an even judging and flying standard through each section of the contest. It is important that the judges and competitors understand that the first couple of qualification heats have a significant effect establishing these standards for the rest of the contest. It is very important that the judges have a unified understanding of their judging standard before the first heat.

Semi-finals are between contestants with very little difference in airspeed and ability. The judges should aim to keep a similar consistent judging standard as in the qualifying heats but with additional emphasis on overtaking and blocking infringements.

The final is a unique race in that it is double the distance and takes four warnings to result in disqualification. A more lenient attitude toward technical infringements (for example :- model landing just outside the flight circle, model pitted on the line not outside it, mechanic having one foot slightly inside the flight circle when retrieving his model and the other models being sufficiently far away as not to cause a safety risk) is warranted but the judges must issue warnings where safety is at risk and for infringements that provide a team an unfair advantage or disadvantage (whipping, blocking, taking the centre, etc). When a team with three warnings is guilty of a further technical infringement that will not materially alter the race result the judges are urged to announce the infringement but to consider allowing the race to continue unless that team continues to race in a dangerous, obstructive or advantageous way. It is preferable that the results are determined by this approach and would allow a team to protest a judge's decision and the finals results be adjusted if the protest is upheld. Only in cases where that team continues to race in a dangerous, obstructive or advantageous way should that team be instructed to immediately land their model.

4.C.2.2. All competitors should recognise that variations on warnings will occur during the course of the contest and that the judges will miss/not observe some incidents. The judges operate from a fixed location and must take this into account. Judges should not give warnings for technical infringements where by virtue of position they cannot treat all teams equally unless there is a significant safety risk or gross misconduct.

4.C.2.3. The rules state that model may not fly for more than two consecutive laps with the engine not running. When the judges cannot directly observe the lap counting devices it is important that the timekeepers provide a 98-lap and 198-lap notice.

4.C.3. **PILOT FLYING STYLE.**

4.C.3.1. The judges should be looking for correct positioning of each pilot in the circle. This can be determined by:

a) The position of a pilot's left shoulder. When walking forward and around, the pilot's left shoulder should be close to the centre pivot point.

b) Spacing between the pilots. When a pilot is attempting to overtake there should be no space between him and the pilot being overtaken. If there is space then the overtaking pilot is behind centre and trying to shorten the radius of the model's path.

c) The position of a pilot's right foot. When walking forward and around, the pilot's right foot should be placed in line with the position of the model. If the pilot's right foot is placed to the outside of the circle being walked and behind the position of the model then the pilot is behind centre.

4.C.3.2. The judges should be trying to identify the cause of bad pilot positioning. This can be determined by spacing between the pilots. When a faster pilot approaches to overtake and there is no space between the overtaking pilot and the pilot in front and the overtaking pilot's handle cannot be positioned any further forward (Fig 4.3.2.1) and the handle then falls behind the position of the corresponding model, then the pilot in front is blocking. This could be because the front pilot:

a) has his non flying arm positioned between himself and the overtaking pilot.

b) has his left shoulder positioned between himself and the overtaking pilot.

c) is positioned behind centre because of the incorrect position of his right foot.

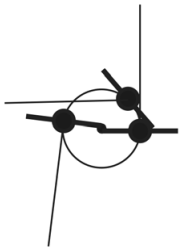

Fig 4.3.2.1

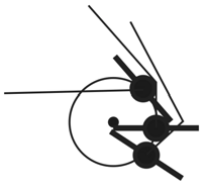

Fig 4.3.2.2

When a blocking situation occurs and the third pilot is also a faster pilot then another layer is introduced into the problem (Fig 4.3.2.2). If there are no spaces between the overtaking pilots then it is the front pilot who is causing the disruption and should be warned for behind centre or blocking. A warning should be given to the front pilot as soon as the overtaking pilot's handle falls behind the position of the model and there is no space between the pilots. If the situation does not change then subsequent warnings should be given until the front pilot responds or is disqualified.

4.C.3.3. The pilot should keep his controlling hand laterally on the centreline of his body, with his hand in close proximity to his chest (approx. 30cms), and vertically located from the middle of his chest and top of his forehead (rule 4.3.6.i.1). He is allowed to move his handle away from the body (forward), but still on the lateral centreline, or above his forehead, in order to better control the model during overtaking for a maximum of three laps. During overtaking the pilot may move his head from the centreline for better vision of his model. During takeoff and landing rule 4.3.6.i.1 does not apply (for up to 2 laps) however this exception does not permit a pilot to whip.

4.C.4. **Rule 4.3.8 Warnings, Disqualifications & Penalties**.

The primary consideration of the Judges is to maintain an equal standard for all competitors within each section of the contest. Their intent should be to allow each competitor to achieve his best result.
Warnings / disqualifications should only be given where either safety is compromised or a team is gaining an unfair advantage by its action or causing a disadvantage to another team in that race.
Judges should not give warnings / disqualifications for purely technical actions that have no safety, advantage or disadvantage implications on the result of that race.

Example- the rules state that normal flying height is between 2 and 3 meters.

A model flying below 2m whilst other teams are carrying out pit stops is a clear safety and disadvantage situation and should be penalised but where only 1 model remains in the race - flying below 2m solo is not an infringement, but flying above 3 m solo is an infringement.

Where the circles have been marked accurately the definitions of outside/ inside the line are:-

Pilot foot on line.
No Penalty

Pilot foot outside line.
Disqualification

Landing outside line before catch.
Disqualification

Pitting inside line.
Warning

Mechanic foot on line.
No penalty

Mechanic foot inside line.
Disqualification

Model on line before catch.
No penalty

The Judges should not wait until an incident/collision occurs before giving warnings – this would be unfair to the competitors who have had their flight obstructed or their model damaged. The judges' responsibility is to give warnings in these situations as a mechanism to maintain a satisfactory flying standard so that a dangerous or unfair situation does not arise.

Each warning shall be notified to the team concerned both visually and orally.

Flagrant breach of the rules should be interpreted as being:

a) Unsafe actions and/or

b) Unsporting actions.

Actions which may be considered unsafe or unsporting dependent upon the particular circumstances in each case:

1) Pilot flies too high immediately after takeoff.

2) Pilot stands erect or raises his hand above his head immediately after takeoff and before fully joining other pilots in the centre.

3) Pilot does not immediately join other pilots in the centre.

4) Pilot does not lower his head and bend down during landing approach.

5) Pilot does not promptly bring his model below 2m after engine has stopped.

6) During landing, the pilot runs model on the ground for more than 1 segment, and does not attempt to avoid (hop over) the lines of other model(s) that are fuelling and starting.

7) Pilot flies the model at an effectively dangerous radius when passing over another mechanic (his handle should remain inside the 3m. centre circle until his own segment).

8) Mechanic releases his model with physical effort.

9) Mechanic has the model or its lines significantly off the ground during repair, adjustment, change of segment, catching, refuelling or restarting.

10) Mechanic releases the model without properly checking that no other model is over flying his pit position on a normal landing approach and causes the landing model to bypass its mechanic in order to avoid a collision (re-flight for the landing model's team). Note: if a collision occurs then the team releasing its model is disqualified.

11) In a situation where multiple infringements take place simultaneously, and the judges do not have sufficient time to give each warning separately, “SERIOUS BREACH”. In this case the individual infringements are communicated to the team at the end of the race.

12) Rule 4.3.8.2 g) states that “A team shall be disqualified from a race if the mechanic steps into the flight circle with either foot or reaches further than 0.5 metres into the flight circle”. This rule was introduced to ensure that mechanics remain in a safe location when retrieving their model.

Retrieving a model in this context should generally be taken as recovering the model from an area outside a pitting segment. The penalty of disqualification should not be applied to mechanics that may have one foot slightly inside the flight circle or reach in to catch the model slightly over the 0.5metre stated limit. The reasoning behind this interpretation is that during a normal pitting activity, mechanics will be balanced on both feet and facing in the direction of other approaching model. They will, therefore, easily be able to move clear of any other approaching model. ((See also 4.C.4.2.7), which makes it the responsibility of the landing/taking off pilot to not fly his model at an effectively dangerous radius.)

When a mechanic is retrieving his model from any area outside a normal pit stop, he is likely to be under pressure to do it quickly and may well have his back towards other model. It is in these circumstances that he is at risk and the disqualification penalty should be applied. Note also that the penalty should be applied where a mechanic carries out a non-normal pit stop such that he either excessively steps inside the flight circle or reaches so far inside that the judges determine he has caused a significant risk to safety.

4.C.4.4. Teams that are disqualified have the right of protest to the FAI Jury. If the protest is upheld they will be granted an attempt and thus a re-flight. Their original race time will not be counted and there is, therefore, no advantage to be gained by flying on after disqualification except in a final. When a team has been disqualified and instructed to land the model immediately this should be done within 10 laps. If the pilot does not attempt to land and continues to prevent the other pilots from racing without interference, the judges will recommend (to the Contest Director) the team be disqualified from the whole contest. See section 4.C.2.1 for teams that are disqualified in a final.

4.C.4.5. Rule 4.3.6.o. states that during the start and refuelling pit stops the pilot must keep his handle and lines as close to the ground as defined by the judges. Judges should interpret this as meaning below knee height with the pilot in a fully crouched position on circuits where there is no risk of the lines becoming caught on the ground and with either hand in contact with the ground as this will ensure that:

a) The lines are sufficiently above the surface to prevent them catching on any obstructions at ground level.

b) The lines are sufficiently low enough to prevent them catching another model that is making a normal landing and to permit safe overflying.

Where the judges determine that the circuit has a rough surface that may cause the lines to be caught then they can allow the handle to be held higher but the pilot must still keep one hand in contact with the ground.

Teams must accept their responsibility to allow other competitors to fly, land, and pit normally.

A normal landing is generally defined as having sufficient airspeed to clear the preceding pit segments by 0.5metres in height and with no part of the model passing above the pitting area as this would prevent the mechanic from continuing with his normal pitting activity. See fig.5.

There are legitimate occasions when the landing/taking off model may not be able to maintain this 0.5metre separation, therefore, it would be a prudent course of action for the pitting pilot to place his handle and lines in contact with the ground on these occasions to prevent an obstruction.

4.C.4.6. Rule 4.3.1.b) states that the race is not complete until either 6 minutes (12 minutes for a final race) have elapsed or the first condition of the 5 listed has been met. Therefore it is possible for teams to be penalised after they have completed their individual race provided that other competitors have not also finished the race. The judges must apply the appropriate penalty, either warnings or disqualification, as defined in section 4.3.8.

Note: - where the judges consider that the failure to control a model, after finishing a race, allowing it to damage another team’s equipment was a deliberate act then the judges could recommend (to the Contest Director) that the team be disqualified from the entire contest for gross unsporting behaviour.

4.C.5. **PHRASES USED BY THE JUDGES**.

4.C.5.1. **"WHIPPING"** is the application of physical force to increase the speed of the model. This occurs when the model is behind the line perpendicular to the pilot's shoulders. See also figs.1 and 2 at the end of the Guide. This is a function of the position of the pilot's handle (H) relative to the centre of the circle (or centre of rotation CR) and the model (M). The CR can be determined, as illustrated in fig.2, by observing the rotation of the pilot's handle and taking the midpoint of the maximum left and right movement of the handle.

4.C.5.2. **"BLOCKING"** is defined as obstructing another pilot either by body position or arm position preventing the other pilot from taking his correct piloting location, thus slowing down his model. See fig 1d. Blocking is caused by the position and attitude of the body of the blocking pilot. With the body between lines 3 and 4 blocking can be caused. Rotation of the shoulders can cause more (a) or less (c) blocking action. Warnings should be given as soon as the overtaking pilot is impeded. Delays can lead to more serious and potentially dangerous situations occurring. Pilots being blocked by a slower opponent will frequently attempt to clear the situation by crossing lines.

Where the blocking pilot has received a warning for this, but remains in the same position, then the overtaking pilot should not be penalised for line crossing for a short period while he clears the obstruction. Excessive blocking to directly prevent being overtaken is a disqualification offence.

4.C.5.3. **"PIVOTING"** is defined as keeping the handle in the centre of the circle with the pilot's body behind the centre. May also be called as **"BEHIND CENTRE"**

4.C.5.4. **"TAKING THE CENTRE"** is defined as the pilot physically keeping his body in the centre and forcing the other pilots to walk around him. This can also occur when the pilot does not return to walking forward after the completion of his overtaking manoeuvre.

4.C.5.5. **"LINE SHORTENING"** occurs when either.

a) The centre of rotation is in front of the pilot's handle or

b) The handle is pulled back from its correct position in front of the body.

4. C.5.6. **"ILLEGAL HANDLE POSITION"** occurs when the pilot does not fly in accordance with rules 4.3.6.i, this is frequently a precursor to a blocking situation.

4. C.5.7. **"PILOT INTERFERENCE"** is defined as:

a) Holding

b) Pulling another pilot such that the pilot's normal activities are impeded,

c) Preventing another pilot from moving around correctly by raising his arm/elbow to occupy the "free space".

d) Warnings should not be given when a pilot only touches another pilot to help his orientation.

4.C.5.8. **"PILOTS GO TO THE CENTRE"** is necessary because the pilots' rotational centre can move them towards the edge of the 3.0m circle potentially causing problems of lack of space for landing/taking off pilots. Warnings will not be given directly to pilots failing to respond to this advice. However, penalties will be given for other infringements that may result from pilots failing to respond to the advice in a controlled and fair manner.

4.C.5.9. **"STOP RACING – SAFETY"** when this command is given by the judges all the teams must immediately respond to it and the race will be declared null and void (after the application of any appropriate penalties). This command will only be given when, in the view of the judges that there is an immediate, significant safety risk. It is expected that the FAI Jury would support this course of action.

4.C.5.10. **"SERIOUS BREACH – DISQUALIFIED"** will be used by the judges where a team is guilty of multiple simultaneous rule infringements that need immediate action to prevent a more serious flying situation developing.

4.C.6. **GENERAL POINTS.**

4.C.6.1. The draws for flying order should be made by the F2C Contest Director in the presence of the judges as early as possible so that competitors are given the maximum time to prepare.

For the semi-finals both rounds are drawn at the same time using a matrix

4.C.6.2. Semi-final draws. If 3 competitors of one nation have qualified they are placed diagonally across the matrix (A); other multiple nations are placed in the matrix randomly across the X axis (B).

A B F.....The 1st round is selected horizontally

B A D.....The 2nd round is selected vertically.

C E A.....In each case a random draw is made to determine segment choice and order of the races.

4.C.6.3. All qualifying and semi final races with only two teams (for example if a team withdraws) will be put at the end of the round in order to allow the 3rd team (either re-flight or semi final standby) a reasonable time to prepare. If necessary, a new draw for pitting segments will be made under the responsibility of the judges.

4.C.6.4. In the case of re-flights there will be a new draw for pitting segments (unless it is a complete re-flight of the same 3 teams).

4.C.6.5. Rule 4.3.5.b states that the judges will call for volunteer teams to fill up (to make it a 3 up race) a qualifying race whenever there is a single contestant remaining for a re-flight. Wherever possible competitors having an obvious interest in the semi-final stage or team classification should not be accepted as volunteers. At a World or Continental Championships the volunteering teams must be of different nationalities from each other and also from the single contestant.

Where the volunteer team is not responsible for the termination of a race it will remain eligible for any official re-flight of that race.

4.C.6.6. The judges should take an interest in the processing of the competitors models as part of its overall responsibility to ensure a fair and even standard for all competitors.

4.C.6.7. Rule 4.3.4.a states that “the tank …. must be accessible and capable of being measured accurately”. As these units become ever more complex and unique the judges support the following statements:

a). It is the competitor’s responsibility to supply any specialist equipment other than the normal flexible fuel tubing that is required to link the measuring equipment with the competitor’s models fuel system.

b). Organisers are only required to make two correctly executed attempts to measure the capacity of the system at the officially designated processing time.

c). If the system cannot be verified by two attempts then the competitor will be allowed to return after the end of the official processing time to complete the verification of the system, with a further two attempts.

Diagrams appear overleaf.