

**To answer your questions more thoroughly, we always refer to the *Hang on to your hat!* contest booklet.**

Q1- When will be we able to read the questions and their answers?

The questions are collected until 11 am on Thursdays and the answers appear on-line the following week. We recommend you ask your question before the weekly deadline to avoid having to wait an extra week for the answer.

Q2- What is the difference between device, vehicle and transformer base?

a) The "device" is the term used in the booklet to refer to the entire "vehicle and transformer base" assembly. This assembly (including any vertical extensions) must be entirely located inside the lines delimiting the departure area before the fans are turned on (Rule 2.5).

b) The "transformer base" is optional and can be added in the departure area to transform the wind energy into another form of energy and then, by some form of physical connection, transfer it to the vehicle. The

transformer base must remain in the departure area throughout your turn. The transformer base can be in contact with the vehicle only when the latter is in the departure area.

c) The "vehicle" is the mobile portion of the device that runs around the track in the playing field. Anything that leaves the chosen departure area will be considered to be part of the vehicle. The vehicle can be in contact with the transformer base only when the vehicle is in the departure area.

Q3- How can you be sure that no potential energy has already been stored in the vehicle before it takes its turn?

During the verification phase the evening before the competition, the teams whose devices raise doubts regarding this point will be invited to modify their device or will be barred from the competition. While the teams are competing, the referees will keep a close eye on this and will be able to conduct any verification they see fit. See also items 3.1 and 3.2 in the booklet.

Q4- What material will be used for the surface of the playing field?

This information will be available soon.

Q5- Can you guarantee that the lines on the playing field will not change the track's friction coefficient?

No. This is part of the competition and participants will have to do the best they can with the imposed conditions.

Q6- What determines when the line in a given area is considered to have been crossed?

See *Note 2* in the *Scoring* section of the booklet.

Q7- What air speed do the fans produce?

If you need this information, it is up to you to evaluate it.

Q8- Can we tilt the fans using shims?

No. The fans cannot be tilted or modified; they must stand on their bases on the playing field surface.

Q9- Can we add accessories in front of the fans, outside the playing area, to direct the wind for example?

No. The official material cannot be modified and all the material that makes up the device must be located inside the departure area.

Q10- Can part of the energy transformer base stand inside the perimeter bordered by the hockey pucks?

Yes, but only in one of the departure areas. See Q14.

Q11- Item 2.7 of the Rules stipulates that "None of the vehicle's bearing points may go beyond the inner perimeter formed by the hockey pucks inside the circle".

Are we to understand that the vehicle must run around the track outside the perimeter formed by the hockey pucks?

Yes, that is correct.

Q12- Is the use of magnets considered as mechanical or electrical energy and are we allowed to use these magnets?

Yes, magnets can be used if they serve to transform wind energy into another form of energy.

Q13- Can there be a physical connection between the transformer base and vehicle, and can this connection last throughout the participants' turn? (In this case the vehicle can no longer be considered as truly autonomous but I believe the rules appear to permit this).

No, there can be no permanent physical connect. Physical connection between the vehicle and the transformer base is permitted only in the departure area. See Q2 b) and c).

Q14- Can the transformer base stand in the inner circle and still be in the departure quadrant?

Yes. It's included in the departure area. See Q10.

Q15- If the vehicle does not need to be started manually, do the laps completed while the fans are running count?

Yes. In this case, we can consider that the starting action is performed by the referee when he or she turns on the fans.

Q16- How high is the light beam?

The light beam will have as its point of origin the hockey puck located on the starting line; its height has yet to be determined for the provincial finals. So it will be somewhere between 1 cm and 3 cm above the floor.

Q17- Can there be structures that cross the vertical plane of the light beam's path above the light beam? (In this case, they wouldn't interfere with the lap count.)

Your question isn't clear. What do you mean by structures.. the transformer base or the vehicle? See Q2.

Q18- What is the surface of the playing field?

See Q4.

Q19- Can we have the device unroll a slide as it makes its way around the track for the

first time and then have the device roll on the rails?

No. Anything that leaves the departure area is part of the vehicle and must, therefore, be mobile. See Q2 b) and c).

Q20- Can part of the vehicle remain in the departure area?

See Q2.

Q21- Can the vehicle go beyond the hockey pucks without touching the floor inside the perimeter?

Yes. See Rule 2.7. It is the vehicle's bearing points that cannot go beyond the inner perimeter of the playing field.

Q22- Is our device allowed to run laps within 750 mm of the centre?

No. See Q21 and Rule 2.7.

Q23- Can the two boxes be combined to make a single larger one to carry the material?

No. You must use two separate boxes.

Q24- Are there any restrictions regarding the vehicle (minimum/maximum size, minimum/maximum mass, number of bearing points...)?

The only restriction is indicated in Rule 2.5. Before the fans are turned on, nothing must extend beyond the vertical planes of the 3 lines delimiting the departure area. See Q26.

Q25- If the vehicle runs N1 laps in one direction (direct transfer of energy) and then N2 laps in the other direction (using accumulated energy), will all the laps be counted?

No. Your vehicle, after having run N1 laps in one direction, will inevitably have to stop to change directions. According to Rule 4.7 in the contest booklet, the referee will have to consider your turn finished when your vehicle stops.

Q26- How is the departure area delimited?

There are two possible departure areas. Each is shaped like a slice of pie equal to one eighth of the circle and is delimited as follows:

- By the circumference of the track formed by a radius of 1,500 mm (the dotted line in the drawing);
- By the starting line, and;
- By one or the other of the black lines located at a 45-degree angle from the starting line.

There are no height restrictions to the departure areas. See also Q24.