

OzHPV Incorporated
Rules for Speed and Distance Records
Edition: March 2020

1.0 PURPOSE:

OzHPV Incorporated (OzHPV) supports human-powered vehicle competition and officially recognises and maintains records for the purpose of encouraging and promoting advancements in human-power technology.

2.0 GENERAL:

OzHPV supports competition in three categories of human power:

1. Land
2. Water
3. Air

Within these categories, competition is supported and records are maintained in the classes of competition outlined below. However, event organisers may organise other events and classes to which these rules may be applied. Events not covered by these rules may also be held in conjunction with competitions.

In general, it shall be the intention of the OzHPV rules to avoid defining what type of vehicle may enter individual competitions, but to let the competition itself determine which type of vehicle is superior by a normal evolutionary process. Exceptions may be made if unavoidable (e.g. arm-powered vehicles).

The spirit of these rules is to promote design innovation by establishing only the minimum necessary regulations and to promote the goal of human powered competition. The OzHPV Records Committee reserves the right to use "spirit-of-the-rule" judgment when deciding upon unclear issues. Record attempts may be carried out by individuals or by national HPV associations and be subject to additional requirements of that association or location. OzHPV sanctions and maintains records but assumes no responsibility for the attempts themselves.

3.0 LAND VEHICLE COMPETITIONS

3.1 Vehicle Requirements

3.1.1 Power: Vehicles must be driven solely by human power. Non-human power sources (batteries, solar cells, etc.) are permitted only for powering sensors, displays, communication equipment and lights. Control devices, cooling fans, powered aerodynamic devices, etc., may not be powered from non-human sources.

3.1.2 Energy Storage: No device which stores energy over more than one input power cycle (e.g. one leg stroke), or which releases energy under control of the operator, may be used in any event except the road race, or speed events longer than one mile. Energy storage devices are permitted in these events provided no energy is stored before the start of the event. This means absolutely no chemical, electrical, kinetic, potential, or other form of energy storage at the start.

3.1.3 Brakes: All vehicles must have a safe means of stopping.

3.1.4 Control: All vehicles must be controlled by the rider(s), with the single exception of that necessitated by the standing start as described in section 3.2.3.1.

3.1.5 Integrity: No vehicle may discard any part after beginning motion.

3.1.6 Geometry: The vehicle geometry must not be altered during use except for steering purposes; i.e. sails or moving control surfaces intended to enhance sailing characteristics are not permitted.

3.1.7 Vehicle Classes: Vehicles shall be recognised in the following classes:

3.1.7.1 Open: Any human powered vehicle

3.1.7.2 Faired or Unfaired: faired vehicles include those with any form of aerodynamic fairing, covering or bodywork, partial or full. Unfaired vehicles have no aerodynamic fairing, covering or bodywork.

3.1.7.3 In-line or multi-track: in-line vehicles would generally be 2-wheel vehicles while multi-track would generally be 3 or 4-wheel vehicles, where each wheel is designed to be continuously in contact with the ground, with a minimum 250mm track width.

3.1.7.4 Class combinations: the classes noted above can be combined, for example: Faired/in-line or faired/multi-track.

3.2 Events

3.2.1 Competition Classes: Competition events shall be recognized in the following classes:

3.2.1.1 Single Rider: The vehicle shall contain only one person.

3.2.1.2 Multiple rider: The vehicle shall contain two or more persons.

3.2.1.3 Arms only: Competitors may use arms only power in all OzHPV events; land, water and air. It will be deemed a separate event category if the rules in section 3.4 "Arm Power Rules" are met. Event officials may request separate arm power events for safety or practical purposes.

3.2.1.3.1 Physically handicapped riders: Rules to be determined. Event Directors may institute special competitions in this area.

3.2.1.4 Male and female riders: OzHPV shall recognize separate records for males and females in all events. However, segregated competition for males and females is to be discouraged.

3.2.1.5 Age groups: OzHPV shall recognize separate records for riders in the following age groupings in all events. The outright record for an event supersedes any age group record recognised for that event.

Under 18 (Junior)

18 to 40 (Open)

41-50 (Veterans 1)

51-60 (Vet. 2)

61-70 (Vet. 3)

71-80 (Vet. 4)

81-90 (Vet. 5)

91-100 (Vet. 6) and so on, as required.

Age is taken as day of birth at the time the competitor starts the event. For example, a person is eligible for the 41-50 age group from the day of their 41st birthday, through to the day before their 51st birthday.

3.2.1.5 Organiser's option: Classes may be combined by the event organiser for a single race, but all records will be maintained in the classes indicated.

3.2.1.6 Indoor vs outdoor: Both indoor and outdoor categories will be recognised separately. The fastest speed (or distance) will be recognised as the outright record regardless of venue type.

3.2.2 Types of Events: The following race events are recognized:

3.2.2.1 200 Meter Speed Trial: The winner of this event shall be the vehicle achieving the highest average speed over a 200 meter interval. A flying start from any distance is permitted, within practical limits as established by the event organiser.

3.2.2.2 500 Meter Speed Trial: Identical to 3.2.2.1 except 500 meters.

3.2.2.3 1 Kilometre Speed Trial: Identical to 3.2.2.1 except 1 kilometre.

3.2.2.4 4 Kilometre Speed Trial: Identical to 3.2.2.1 except 4 kilometres and the trial is a "standing start" event.

3.2.2.5 10 Kilometre Speed Trial: Identical to 3.2.2.1 except 10 kilometres and the trial is a "standing start" event.

3.2.2.6 100 Kilometre Speed Trial: Identical to 3.2.2.1 except 100 kilometres and the trial is a "standing start" event.

3.2.2.7 1 Mega-Meter (1,000,000 meters) Speed Trial: Identical to 3.2.2.1 except 1,000,000 meters and the trial is a "standing start" event.

3.2.2.8 1 Mile Speed Trial: Identical to 3.2.2.1 except 1 mile.

3.2.2.9 200 Meter Speed Trial, 600 meter start: The winner of this event shall be the vehicle achieving the highest average speed over a 200 meter interval. A flying start from not more than 600 meters before the 200 meter timed section is permitted.

3.2.2.10 1/4 Mile Elapsed Time: The winner of this event shall be the vehicle achieving the shortest elapsed time to travel 1/4 mile. A standing start is required.

3.2.2.11 1 Kilometre Time Trial: Same as 3.2.2.8 except 1 km distance.

3.2.2.12 1 Mile Time Trial: Same as 3.2.2.8 except 1 mile distance.

3.2.2.13 1-Hour Time Trial: The winner of this event shall be the vehicle achieving the maximum distance in one hour. A closed course is required for this event. A standing start is required. Distance is determined by direct measurement. Alternatively, the time trial distance may be calculated from the course length and lap timings.

3.2.2.14 6-Hour Time Trial: Same as 3.2.2.11 except 6 hours.

3.2.2.15 12-Hour Time Trial: Same as 3.2.2.11 except 12 hours.

3.2.2.16 24-Hour Time Trial: Same as 3.2.2.11 except 24 hours.

3.2.2.17 Road Race: The winner of this event shall be the first vehicle to complete a designated number of laps on a designated course. The starting requirement may be a standing start, flying start or LeMans start. The event organiser shall specify the exact course, the number of laps, and the type of start. No records shall be recognized for this event.

3.2.2.18 Practical/Commuter Vehicle: Rules to be determined.

3.2.2.19 Special Records Events: Members are encouraged to submit applications for new record categories to OzHPV. Significant achievements will be recognized as new record classes.

3.2.3 Starts

3.2.3.1 Standing Start: A standing start is defined as an unassisted start from the stationary position, except that vehicles which are unstable at low speeds may be assisted by one assistant for not more than 15 meters. The assistant may not push the vehicle.

3.2.3.2 Flying Start: A flying start is defined as a start where the vehicle may be assisted by accelerating before entering the timed portion of the course. Push assists by one or more persons are permitted. Pushers may not assist the vehicle for more than 15 meters.

3.2.3.3 LeMans Start: A LeMans start is defined as a start where the vehicles are parked diagonally on one side of the race course, while the racers line up on the other side of the track. At the start of the race, the riders run to their vehicles, get in, and proceed onto the course. Push assists are not permitted. However, if any vehicle is unstable at low speeds, a single assistant is permitted to stabilise the vehicle for not more than 15 meters. The same assistant may also assist the rider in getting into the vehicle, closing canopies, etc.

3.2.3.3.1 Assisted LeMans Start. An assisted LeMans start is defined to be the same as a LeMans Start, except that a single assistant is permitted to assist the rider in getting into the vehicle and getting underway.

3.2.4 Drafting: No human-powered vehicle may be assisted in any record attempt by a pacing vehicle used for the purpose of aerodynamic assistance.

3.2.5 Change of Riders: No change of riders or removal of riders is permitted during a race.

3.2.6 Passing: In multiple-vehicle races, lapped vehicles must yield right-of-way to lapping vehicles. Blocking or obstructing the race path by weaving is prohibited. Vehicles should follow a steady predictable line during a race and avoid sudden manoeuvres which might cause accidents.

3.2.7 Safety Requirements

3.2.7.1 Helmets: All riders shall wear helmets during all competition. Helmets must meet the standards of a nationally accredited testing facility of any OzHPV member country. The burden of proof of meeting these requirements resides with the competitor.

3.2.7.2 Vehicle Safety: Vehicles may be disqualified from competition due to inadequate braking capability, lack of stability, poor visibility, presence of dangerous protrusions, or other unsafe design features. Vehicles which are deemed to be unsafe may be flagged off the course by event officials.

3.2.8 Conduct: Any competitor judged by the Event Committee to have practiced unsportsmanlike conduct during an event may be disqualified from that particular event. The Event Committee shall review available evidence before making a decision to disqualify. The decision of the Event Committee is final.

3.2.9 Illegal Substances: The competitor may be subject to tests for drugs or other substances designed to enhance athletic performance that may be defined as illegal by the International Olympic Committee at the time of the attempt. Detection of illegal substances will invalidate the attempt.

3.3 Course Requirements

3.3.1 Course Flatness: Except for courses for the road race events, and the time trial events one hour and over, all courses must meet the following flatness requirement: If an imaginary line is drawn from the end of the timed portion of the event course back toward the beginning of the course but sloped upward at a slope of 2/3 percent (1 meter in 150), at no point may the vehicle course pass above this line. Curved courses may be used for any event, provided the same flatness requirement is met. The 200 meter time trap in the 200 meter speed trial events, however, must be contained in a straight section. All curved courses must be clearly marked with the limiting inside boundary. Any vehicle crossing a wheel over this boundary shall be disqualified from the run. Course distance shall be measured from the inside boundary of turns.

3.3.2 Course Measurement: In order to qualify as a record course, distances and elevation difference must be measured and certified by a registered Civil Engineer, a registered Land Surveyor, or a person with equivalent training. Alternative evidence of course measurement may be considered by the OzHPV Records Committee.

Once a course has been certified, re-certification is not required unless significant alterations to the course have been undertaken

3.3.3 Timing: All timing must be accomplished by automatic start and stop actuation. Timers must be certified as accurate to within 1/100 of a second in 10 minutes or 1 second per day at a temperature of 20 degrees/C, plus or minus 5 degrees/C. Timing to

the nearest 1/100 second is required, and timing to the nearest 1/1000 second is preferred.

3.3.3.1 For WHPVA ratified World records: Certification must be by a chronographic testing service or a registered Electrical Engineer.

3.3.3.2 For OzHPV ratified Australian records only: OzHPV will consider calibration performed by other than "calibration services or certified electrical engineers" provided a certified timepiece is used to check the timing system against. Calibration method should ideally be discussed with the OzHPV technical committee to ensure appropriateness, and ideally be carried out to prior to record attempts.

3.3.4 Wind: For any run to be approved as a record, except as noted in section 3.3.4.1 below, the wind velocity in any direction must not exceed 6 (six) kilometres per hour (1.67 meters per second). Wind velocity measurement must be taken during the duration of the actual timed run at the finish of the course, at a level of 2 meters above the course surface. These restrictions apply to closed and straight courses.

3.3.4.1 Wind Restrictions for Long Duration Events: There are no wind restrictions for time trial events of one hour or longer, or for distance events of 100 km or greater, provided the event is held on a closed course and at least one full lap is completed. The geometry of vehicles competing under this rule shall be fixed: there will be no sails or moving control surfaces specifically intended to enhance the sailing characteristics of the vehicle.

3.4 Arm Power Rules

3.4.1 Power: Power from the rider(s) to vehicle momentum shall be transmitted by way of rider(s) arm and hand movements only. Upper torso above hips may contribute such power output. No part of a rider's leg or foot shall contribute to upper body power output for gaining and maintaining vehicle momentum.

3.4.2 Control: No restrictions, but must meet all OzHPV vehicle control requirements as set forth in general rules.

3.4.3 Qualification: Any rider may compete in arms only events provided they meet all arm power rules. Rider accommodation waivers may be applied for and must be approved in advance of an attempt by the OzHPV Records Committee. The purpose of waivers is to enable a rider to compete in this class without giving them specific advantage.

3.5 Practical/Commuter Vehicle Rules: To be determined.

3.6 Documentation – Written documentation of a record attempt must be submitted to OzHPV within 30 days after the attempt. This shall include:

- The date, time and location of the attempt.
- The names of the vehicle designer(s), builder(s), and rider(s) and the name(s) of the person(s) or organisation(s) applying for the record.
- Photographs of the vehicle, or acceptable drawings. In the event photographs cannot be taken at the event, photographs should be taken as soon as possible before or after the event and the attending observers/officials declare that the images are true representation of the vehicle during the attempt.
- Evidence of course measurement and accuracy.
- Evidence of timer calibration and accuracy.
- A statement that all of these regulations and conditions have been complied with, signed by the applicant and both observers.

- A record of the environmental conditions during the whole attempt.
- Speed and direction of wind.
- A video showing the attempt, starting procedure and compliance with these regulations and conditions is highly recommended, and may be used by OzHPV for publicity purposes.

4.0 WATER VEHICLE COMPETITION RULES

4.1 Vehicle Requirements (Pure Human Power Class)

4.1.1 Power: Vehicles must be driven solely by self-contained human power. Non-human power sources (batteries, solar cells, etc.) are permitted only for powering sensors, displays, communication equipment, or lights. Control devices, cooling fans, aerodynamic and hydrodynamic devices must be human powered. Some exceptions may be allowed, but must be approved in advance of any attempt by the OzHPV Records Committee. Power may not be extracted from wave energy or wind and water currents, except momentarily in such a way that the overall effect during the attempt does not constitute an advantage when compared to the same attempt without these conditions, or within the tolerances specified in Appendix B.

4.1.2 Energy Storage: In events with a flying start the accumulation of the kinetic energy of vehicle and rider(s) is permitted in accordance with rule 4.2.3.2. Other forms of energy storage are permitted provided this energy is created within the timing section of an attempt and provided its source is human power. No pre-start storage is allowed. See Appendix B and also rule 4.1.1 regarding instrument batteries.

4.1.3 Propulsion: Propulsion must be provided entirely by hydrodynamic and/or aerodynamic devices. Any type of fluid-dynamic propulsion device is allowed. Particular characterisations of propulsion, e.g. oars, propellers, paddle wheels, or those not covered by these rules (e.g. punting) may be divided into separate sub-classes. Riders may use any and all parts of their bodies for propulsion (except for the 'Arms Only' class defined in rule section 4.2.2.3.)

4.1.4 Control: Vehicle control forces must be provided by onboard rider-controlled mechanical, hydrodynamic, or aerodynamic device(s). The on-board rider(s) must control the vehicle; other person(s) or means must not control the vehicle. Auto-steering devices under the direct control of the rider are permitted.

4.1.5 Integrity: No materials may be jettisoned for aiding propulsion or lightening the craft other than unadulterated water or air collected during the attempt. The rider must ride on or in the vehicle.

4.1.6 Support: All types of devices directly or indirectly supported by the water are allowed. This includes displacement and planing craft, hydrofoils, hovercraft, and craft having moving skins or tracks. Vehicles using an "air cushion" or "ground effect" are permitted, whereas craft capable of free flying are not. Records characterised by the type of support, e.g. displacement craft, or underwater craft, are considered sub-classes (see 4.2.1.2). The rider(s) and vehicle must be able to begin and end any attempt fully afloat and essentially stationary with respect to the water. For the passage through the timing section itself, see 4.2.3.

4.1.7 Rider Attributes: Any number of active riders of either gender may power the vehicle. The gender and number of riders constitute a class distinction, e.g. single-rider, women. Those who request a class distinction for other physical attributes: youth, senior,

physical size, physical disability, etc. may request such distinction from the OzHPV Records Committee. Approval must be completed prior to any record attempt.

4.2 Watercraft Class Events

4.2.1 Competition Classes: A complete list of watercraft classes maintained, and events within those classes, are shown in Appendix A. The OzHPV web site at <http://www.ozhvp.org.au> may contain updated Appendix information. The following class types are recognised for events:

4.2.1.1 Pure Human Power Class: Watercraft must meet the requirements as defined in section 4.1 to be automatically recognised as such.

4.2.1.2 Sub-Classes: Classes that do not meet the requirements of the Pure Human Power Class as defined in section 4.1 are called sub-classes. OzHPV may record or publish achievements in sub-classes that are regarded as worthwhile. The rules governing sub-classes are the same as for the watercraft Pure Human Power Class with the exception of the particularities in question. The sub-class must be qualified by these particularities, if possible within its name.

4.2.1.3 Other Achievements in Watercraft: A record attempt, which nearly fits into an existing class but does not fulfil all requirements, may be recognised as an "outstanding achievement" or "qualified record" within the existing class, provided that the attempt's particularity is clearly recognisable. An "outstanding achievement" or "qualified record" within an existing class may include class records maintained by other organisations.

4.2.1.4 New Classes: New classes may be started at any time but will not necessarily be maintained or published by OzHPV until added to the class list by the OzHPV Records Committee at its discretion.

4.2.2 Class Categories: For the purpose of event records within the watercraft Pure Human Power Class, the following categories shall be recognised (class categories in Sub-Classes must be separately approved. See Appendix A):

4.2.2.1 Single Rider: The vehicle shall contain only one person.

4.2.2.2 Multiple Riders: The vehicle shall contain two or more persons. Multi-rider classes may be gender mixed.

4.2.2.3 Arms Only Riders: Deemed a separate category when following rules are met:

4.2.2.3.1 Power: Power from the rider(s) to vehicle momentum shall be transmitted by way of rider(s)' arm and hand movements only. Upper torso above the hips may contribute to arm and hand power output. No part of a rider's leg or foot shall contribute to upper body power output for gaining and maintaining vehicle momentum.

4.2.2.3.2 Control: No additional restrictions, but must meet all OzHPV vehicle control requirements as set forth in the watercraft rules.

4.2.2.3.3 Qualification: Any riders may compete in arms only events provided they meet all power rules. Riders who have disabilities that

prevent them from meeting all requirements of section 4.2.2.3 may request a waiver from the OzHPV Records Committee (in advance of attempt) so they may legally compete in this category. However, such request will not be granted if doing so would give the rider(s) a significant competitive advantage over others in this class.

4.2.2.4 Male and Female Riders: Upon request, OzHPV shall recognise separate records for male and female riders in events. However, segregated competition for male and female riders is to be discouraged. Multi-rider vehicles with both male and female riders shall have no class distinction based on gender.

4.2.3 Starting and Finishing

4.2.3.1 Standing Start: The rider(s) and vehicle must be at rest and fully afloat behind the starting line when the event timing starts.

4.2.3.2 Flying Start: The vehicle may accelerate over an unlimited distance prior to entering the timed portion of the course. All watercraft momentum gained prior to the timing section must be made by human powered efforts of the rider(s) as required in other sections of these rules.

4.2.3.3 Finishing: Finishes may always be timed "flying", i.e. with the vehicle moving.

4.2.4 Drafting: A vehicle may not be aerodynamically or hydro-dynamically assisted by the presence or action of any other vehicle or device. It is accepted that passing vehicles may momentarily cause assistance (see section 4.2.6.)

4.2.5 Change of Riders: No change of rider(s) or removal of rider(s) is permitted during an event. Rider(s) may remove themselves for reason of illness or emergency and the record attempt continued if this does not result in an advantage over the normal situation. Records with defined rider changes are possible under appropriate sub-classes.

4.2.6 Passing: In events where multiple vehicles are on a course at the same time, vehicles being overtaken from behind, such as being lapped, may not obstruct the path of others on course by weaving or deliberate obstruction of the course. Vehicles should follow a steady predictable line during an event and avoid sudden manoeuvres that might cause accidents. Event observers shall make judgments on passing disputes.

4.2.7 Safety Requirements: Safety shall be paramount at all times and is the responsibility of the entrant. The observers must be satisfied that the course is safe; attempts will not be observed under unsafe course conditions or if the competitors create unsafe conditions through their behaviour or riding style.

4.2.7.1 Personal Flotation Devices: Riders must in general carry one Personal Flotation Device (sometimes known as "life vests") on board for each person and wear them as instructed by the observers or event organiser. This requirement may be waived in closely supervised attempts or if equivalent buoyancy aids are worn. Riders are required to keep their own safety in mind and wear their life vests if there is a reason to, such as bad weather, cold water, known weaknesses of craft or rider(s), or not being able to swim. The standard and use of the flotation device must meet local legislative requirements and should reflect the conditions. People, craft, or courses with special risks should warrant the use of appropriate flotation devices and not just buoyancy aids.

4.2.7.2 Buoyancy: The vehicle must be buoyant under normal event conditions or when capsized. The event organiser may waive this requirement if they supervise each attempt closely and provide for the safety of the rider(s) and for any required recovery of the craft(s).

4.2.7.3 Additional Safety Requirements: The observers must be satisfied that the rider can exit the vehicle unassisted and has effective protection from injuries. Official observers may require additional safety equipment such as paddle(s), bailer, line, whistle, and flag. Safety equipment should be agreed upon in advance of attempt. For long distance events in open waters, additional pyrotechnic and radio means are recommended.

4.2.8 Conduct: In the case of record attempts carried out during race meetings or similar events, any competitor judged by the event organiser to have practiced unsportsmanlike conduct during an event may be disqualified from that particular event.

4.2.9 Illegal Substances: The competitor may be subject to tests for drugs or other substances designed to enhance athletic performance that may be defined as illegal by the International Olympic Committee at the time of the attempt. Detection of illegal substances will invalidate the attempt.

4.3 Watercraft Course Requirements

4.3.1 Course Layout: The course shall be defined as the shortest possible path between the start and finish line, which may include markers that must be passed in a specified manner. A speed measurement shall be made by measuring the elapsed time over the specified distance.

4.3.2 Course Measurement: The distance of a course shall be measured and certified by a registered Civil Engineer, licensed Surveyor, or equivalent. Markers establishing the distance must be firmly attached to the earth, either on shore, on driven piles or by other means not subject to drift due to current or wind. The start/stop actuators or transits for timing shall be located at these positions. The measurement error must be indicated and the course lengthened by at least this error, i.e. if the measurement error is 0.1 m, the nominal 100 m course must be laid out as 100.1 m, but 100.0 m used in any further calculations for speed.

4.3.3 Course Definition: Courses can have the same or different start and end points, but must be continuously measured, i.e. it is not permissible to consider the average of a number of runs as a record.

4.3.4 Environmental Factors: It must be proved plausibly that there is no net environmental power input or advantage due to potential energy difference during the attempt except for the allowable tolerances. Ways of establishing this and the currently allowable tolerances are described in Appendix B. Vehicles which do use environmental energy over the tolerated amount are considered in a sub-class of environmentally-assisted vehicles. There are no restrictions regarding altitude.

4.3.5 Water: The water must be liquid (no ice boats) and be of a temperature and salinity as found in natural bodies of water. The depth must be sufficient that no support is derived directly or indirectly by the bottom. See Appendix B.

4.3.6 Timing: Timing equipment must have a resolution of at least 0.1 s except for long distance events where 1 second is sufficient. Timing results must be rounded in the unfavourable direction or accepted statistical methods applied (and documented) in the

case of multiple timing devices. Methods such as Video-Timing or Global Satellite Positioning are allowed if it can be shown that they are suitable, sufficiently accurate, and calibrated. Video documentation of events is highly recommended; see section 4.4.

4.4 Documentation - Written documentation of a record attempt must be submitted to OzHPV within 30 days after the attempt. This shall include:

- The date, time and location of the attempt.
- The names of the watercraft designer(s), builder(s), and rider(s) and the name(s) of the person(s) or organisation(s) applying for the record.
- Photographs of the vehicle, or acceptable drawings.
- Evidence of timer calibration and accuracy.
- Evidence of course measurement and accuracy.
- A statement that all of these regulations and conditions have been complied with, signed by the applicant and both observers.
- A record of the environmental conditions during the whole attempt:
 - Speed and direction of wind
 - Speed and direction of water current(s)
 - Water conditions (sea state and type of water body, water depth if relevant. See Appendix B).
- A video showing the attempt, starting procedure and compliance with these regulations and conditions is highly recommended, and may be used by OzHPV for publicity purposes.

5.0 AIR VEHICLE COMPETITION RULES: To be determined.

6.0 OBSERVERS

All record attempts must be witnessed by at least two official observers appointed by OzHPV, who must establish whether all requirements described in these regulations have been met. The observers must furthermore record all information relevant to the attempt and submit this as proof to OzHPV when a record is claimed. This must be submitted in the English language. The observers must further be able to satisfy OzHPV that they are sufficiently independent of the competing team and possess sufficient integrity and knowledge for the nature of the observation task required.

7.0 SANCTIONING

OzHPV will sanction events organised under these rules. In order for a record to be recognised, sanction must be obtained from OzHPV prior to the event or record attempt commencing. A completed application for event sanctioning should be received by OzHPV at least 30 days prior to the event.

All contestants in an event sanctioned by OzHPV must sign a waiver releasing OzHPV from liability for the event. Due to differences in regional law, local officials may require a liability waiver of contestants before an event proceeds.

8.0 RECORDS

- All record attempts recognized by OzHPV must be run according to these rules.
- The OzHPV Records Committee will approve records resulting from attempts that meet these rules.
- Record attempts must be sanctioned in accordance with section '7.0 Sanctioning'.
- Record attempts may be conducted as part of a competitive event as well as a stand-alone record attempt.

- All contestants undertaking a record attempt must be financial members of OzHPV prior to the record attempt commencing (Note: support crew do not need to be members of OzHPV).
- An official appointed by OzHPV must observe the record run – see section ‘6.0 Observers’.
- The official must be in no way connected with the ownership, design or operation of the vehicle. The official must be an entirely independent observer.
- Documentation of the record attempt must be forwarded to OzHPV within 30 days after the event.
- OzHPV may, at its discretion, waive some OzHPV requirements and accept records established by other record sanctioning organisations provided vehicle and class event requirements are met.

9.0 RULES INTERPRETATION AND PROTESTS

Each event organiser shall set up an event committee to interpret these rules and settle any protests. The head of the event committee shall be an OzHPV representative. Decisions of this committee in regard to the competition are final. As allowed or required by rules, observers and event organisers may warn or disqualify competitors. Any unresolved issues must be submitted in writing to the OzHPV Records Committee for interpretation and resolution. Protests concerning record attempts must be submitted in writing to OzHPV no later than 30 days after related record(s) have been published by OzHPV. Reasonable submissions will be reviewed and a final decision made within 120 days following receipt of the dispute.

10.0 RULES CHANGES

Any member of an OzHPV affiliated association may recommend a change of rule to the OzHPV Records Committee.

Changes will become effective after approval by the OzHPV Records Committee and publication of the updated rules.

Appendix A

OzHPV Watercraft Classes and Events

- 100 meter flying start speed trial - Men, single rider
 - 100 meter flying start speed trial - Women, single rider
 - 2,000 meter standing start speed trial - Men, single rider
 - 24 hour standing start speed trial - Men, single rider
 - 24 hour standing start speed trial - Multiple riders
-

Appendix B

OzHPV Watercraft Environmental Tolerances and examples

Wind and Current

Attempts may be disallowed if observation notes show that wind or water currents may have contributed to an improved average course speed (inclusive of flying start run-ups) when compared with a hypothetical no-wind or no-current situation. Favourable winds and currents which result in a speed advantage of less than 1% may be tolerated if this can be adequately and accurately shown.

Measurement errors must be specified except in cases where it is clear that even large errors have no relevance.

Examples (these are not rules, but suggestions for showing their fulfilment):

Water currents:

Water surface current can easily be measured by timing and sighting a floating orange. Except near the inflow and outflow of rivers, the water current in lakes is usually negligible except for the wind-induced surface current.

Wind:

Wind strength can be measured by a variety of instruments either instantaneously or by averaging during the duration of the attempt. Accuracy is not important as long as it can be shown that there is no net power gain. For example with unstreamlined vehicles, if there is a favourable gust this can be discounted if there is at least an unfavourable gust from the opposite direction with at least the same duration.

Wind direction can be measured instantaneously by a number of devices: wind vanes, streamers, smoke, or soap bubbles. The wind direction can be considered constant if it varies only slightly during the attempt in the experience of the observers, otherwise the deviations must be recorded.

Streamers such as a simple woollen thread, smoke, etc. are extremely sensitive and can show very low wind strengths and their direction. Some axial vane devices are very sensitive and if set up in the direction of the run will count both forward and backward, thus immediately showing the average wind component strength and direction. A negative (i.e. headwind) count is sufficient

evidence to prove no wind assistance at the location of the instrument provided that the true wind direction is shown to be at an angle of less than 45 degrees for completely unstreamlined craft and less than 10 degrees for highly streamlined craft or craft using air propellers. In cases of doubt it is suggested to gather sufficient measurements for the record committee to decide.

General:

What counts is the experience, integrity, and common sense of the observers. Clearly a round-course will not cancel environmental effects if currents and winds are non-uniform and happen to coincide favourably with the course, e.g. a large eddy in the same direction, or an exposed downwind leg and a sheltered upwind leg. Equally, any craft with the least sailing capabilities will gain most by travelling at right angles to the wind. Or, any craft with both air and water propellers will be capable of exploiting slight differences in wind or current in any direction.