WHF001

Competition Regulations for World Championship Events

WORLD HOVERCRAFT FEDERATION

PROPELLING GLOBAL HOVERSPORT

www.worldhovercraftfederation.org

World Hovercraft Federation

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Latest changes are shown In ***Red bold Italics***

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1. Introduction

1.1 Foreword

A. These Competition Rules have been formulated by the Governing Board of the World Hovercraft Federation (WHF) and are to be followed when organising designated World Championship Race Meetings.

B. The WHF takes no responsibility for the organisation of Race Meetings. This responsibility is with the organising National Body.

C. These rules are the copyright of the WHF but permission is given to National Governing Bodies to reproduce these rules in their own language. However English takes precedent in any dispute.

D. It is the responsibility of all National Governing Bodies to ensure that copies of these rules are available to all Competitors and Officials.

E. The WHF Secretary will be in charge of the use of these regulations and will be able to delegate his/her powers to a deputy.

F. Except in exceptional circumstances no rule changes affecting site requirements, formulae classification or craft construction will be allowed 12 months before any World Federation Event, except for safety and security reasons.

G. Endurance Racing is now covered by document WHF016, which must be read in conjunction with this rulebook.

1.2 Associated Publications

Ref No.	Title	Issuing Organisation
WHF002	Construction Regulations for Racing Hovercraft	World Hovercraft Federation
WHF007	Appeals Procedures for WHF Events	World Hovercraft Federation
WHF008	Scrutiny and Compliance Procedure for Racing Hovercraft	World Hovercraft Federation
WHF016	Competition Regulations for Endurance Racing	World Hovercraft Federation

2. Hovercraft Meeting Officials

2.1 Race Director

A. The Race Director has overall control of the meeting and his/her word is final, subject to protest.

B. The Race Director or appointed deputy will conduct a briefing with all Drivers and Marshals before the start of operating and at other times as necessary.

C. The Race Director is empowered to penalise.

D. The Race Director will be supported by two officials who will observe all drivers during practice and time trails, to make sure they are competent to race.

E. The Race Director may prohibit a Driver from taking part in a race if he/she considers the Driver is not competent to race safely.

2.2 Other Officials

A. The number of officials will vary with the size and type of meeting but overall responsibility will rest with the Race Director.

B. Race Meeting Officials should carry easy means of identification.

C. A Doctor or recognised Paramedical Team and an Ambulance shall be on site at all Race Meetings.

D. Organisers on duty shall not be under the influence of intoxicating substances. The limit shall be equal to the Host Country's regulations.

E. A set of these regulations shall be issued to all Officials.

F. In extreme circumstances Race Meeting Officials can be removed from duty. The decision will be taken by a special committee, comprising one representative from each National Body, present at the meeting.

3. Craft

3.1 Scrutineering

A. All craft must be presented for scrutineering and must comply with the WHF Construction Regulations WHF002 and any supplementary regulations that may in force. It is the craft owners' responsibility to ensure and check for conformance.

B. A scrutineer, appointed by the host country, will carry out an examination of the craft for any obvious defects. If a craft is found not to comply with the WHF Construction Regulations it will not be allowed to operate.

C. A current craft log book must be presented to the scrutineer. If the log book is not available a full scrutiny I.A.W WHF008 may be called for and an appropriate fee charged.

D. Any damage or modification to the craft, including ballast, which occur during the race meeting, must be reported to the designated Scrutineer for inspection, prior to further operation.

3.2 Lanyard Kill Switch

A. All lanyard kill switches will be checked before each race.

3.3 Formula Classification

A. The following Formulas shall apply:

Formula	Engine Capacity			
	Two Stroke	Four Stroke	Electric	
Formula 1	Over 600 cm^3	over 750 cm^3	***No limit on electrical power***	

Formula 2	Over F3 as defined below.
	Under 600 cm^3 two stroke (See 1.1Ac below)
		Over F3 as defined below. under 750 cc four stroke (See 1.1Ac below)	• ***Electric transmission may be used with existing IC engine limits (e.g. IC engine used partly or fully to drive a generator that in turn runs an electric motor driving a fan.***
			  • ***Batteries with maximum stored energy capacity of up to 1 KWh may freely be used to store prior energy / buffer the system.***
			• ***For the case of IC engine thrust and independent battery electric lift system, electric lift will count towards the IC engine capacity in the following way:***
			  ○ ***For 2 stroke engine equivalency, peak electric power (KW), as measured by the product of current * voltage, will count to IC capacity limit at the rate of 6cc/KW.***
			  ○ ***For 4 stroke engine equivalency, peak electric power (KW), as measured by the product of current * voltage, will count to IC capacity limit at the rate of 7.5cc/KW.***
			• ***Example calculation:***
			  ○ ***Electric lift system with peak power of 15KW (20.1 hp)***
			  ○ ***For 2 stroke equivalency: 15KW * 6cc/KW = 90cc***
			  ○ ***For 4 stroke equivalency: 15KW * 7.5cc/KW = 112.5cc***
			• ***Full battery electric at this stage is not accommodated in F2 or F3 due to the difficulty of defining equivalency with an IC engine capacity limit.***	

Formula 3	Under 250 cm^3	under 500 cm^3 (See 3.3H below)		
Formula S	Unlimited engine capacity, single engine, single duct		***No limit on electrical power***	

Formula 50	**Single fan**, single duct integrated craft (Fans of less than 300mm used solely for engine cooling will not be counted).
	Single engine, either:
	• Standard Rotax 503 engine
	  ○ **Carburettor:** Single or twin, maximum diameter of 37mm
	  ○ **Exhaust:** Any exhaust system may be used, but when tested with the craft static, the engine at full throttle must not exceed 200 RPM more than when compared to running the engine full throttle with standard Rotax 503 exhaust (Part number: 973275), Standard Rotax 503 exhaust manifold (Part number: 878937) and Standard Rotax connecting section (Part number: 973182). No adjustments may be made during this test.
	  ○ The removal of the Rotax 503 cooling fan and subsequent head rotation is permitted.
	• Standard Fuji Robin EC44
	  ○ **Carburettor:** Single or twin, maximum diameter of 37mm
	  ○ **Exhaust:** Manufacturers two into one exhaust system (positional modifications to allow safe fitting of the exhaust to the hull are permitted, but the exhaust must remain dimensionally the same)
	• Standard Hirth 2703V
				Electric Not permitted

	○ **Carburettor:** Single, maximum diameter 38mm ○ **Exhaust:** Manufacturers standard two into one exhaust. Any of the options given in Appendix E. • ***Standard Russian Mekanic RM-500 (also known as PM3-500, RMZ-500 or TAJGA-500)*** ○ ***Exhaust: Manufacturers standard two into one exhaust.*** ○ ***Carburettor: Single or twin, mikuni 37mm***		
Formula 35	Single or multiple four stroke air cooled industrial engines with a total horse power not exceeding 35hp as specified on the manufacturer's engine label(s) / name plate(s) and operating within the manufactures engine speed range. If this information is not available it is the drivers' responsibility to provide documentary evidence to the satisfaction of the WHF Technical Director, or his representative, that engines meet these requirements.	***Full Electric: Peak electrical power limited to 35 hp (=26.1 KW). Measured by taking product of current * voltage at all motors.*** ***Hybrid IC/Electric: The total of peak electric and IC engine power not more than 35hp (=26.1 KW). Electric power measured by taking product of current * voltage at all motors.***	

B. Formula 2 Engine Capacities limits and calculation

Where a Formula 2 craft has a combination of engines the "effective" capacity shall be determined as follows: The reference limit for Formula 2 is a total two stroke engine capacity of 600 cm^3. The two stroke or equivalent two stroke value will be the total sum as calculated by using the following rules:

a) The capacity of any two stroke engine shall be its actual capacity unless it falls into one of the categories below.

b) The capacity of any four stroke engines shall be divided by 1.25 unless it falls into one of the categories below.

c) The capacity of any rotary engine shall be rated as 3.3D below.

d) The capacity of any two stroke engine used exclusively for lift where the fan is directly coupled to the crankshaft shall be its actual capacity divided by 2.

e) The capacity of any 4 stroke or rotary engine used exclusively for lift where the fan is directly coupled to the crankshaft shall be its equivalent capacity as calculated in 3.3B.b) or 3.3B.c) above divided by 2.

C. Engine re-bores for maintenance:

Engines are classed according to the standard cm^2 when new. Re-bores are allowed to the following oversize:

- Formula 3 256 cm^3 two stroke 512 cm^3 four stroke
- Formula 2 Two stroke reference limit of 610 cm^3
- Formula 50 508 cm^3.

Standard engines bored outside these limits will be classed at their measured capacity.

D. Wankel engines are rated as twice the swept volume per chamber, times the number of rotors, with the exception of engines where all the induction air is passed through the rotor, in which case the engine will be rated as swept volume per chamber times the number of rotors. Engine details will be as per engine manufacturer specifications and in any dispute the driver must make the original specifications available.

E. Gas turbine powered craft shall be categorised as Formula 1.

F. Pressure charged engines (supercharged or turbo-charged) shall be rated at twice their swept volume.

G. Unless special permission has been obtained, all races towards a World Championship will be run in separate formulas.

H. F3 may be removed as a World Championship formula where it is impractical to include it in the programme. This must be agreed with the WHF prior to an event programme being published. If F3 is removed from a World Championship event all F3 craft are entitled to enter FS as FS craft.

4. Driver

4.1 Eligibility

A. All drivers must be a member of a National Governing Body which is a member of the WHF.

B. All drivers must present a qualified National Licence appropriate to the formula they are entering issued by a National Governing Body which is a member of the WHF. (A novice licence is not acceptable). The issuing country shall be stated at registration.

C. The driver must be 16 years of age or over unless a competition is especially designated otherwise.

D. All drivers must participate in practice or time trails.

E. All drivers must attend the Race Director's formal briefing except under exceptional circumstances in which case they must report to the Race Director before operating.

F. All drivers must have read the current regulations and any supplementary rules published by the WHF Secretary and sign to that effect at the Race Director's formal briefing. A signing on sheet shall be provided for this purpose by the organisers.

G. All entrants must declare during registration if they have completed 5 or less races in the previous 24 months. The organisers will inform the Race Director of all drivers meeting this criteria. These drivers shall be observed during practice to ensure they are competent to compete. See 2.1E.

4.2 Protective Wear

A. All drivers shall wear a crash helmet. The user must ensure the helmet fits properly, is fastened securely and is in a serviceable condition. Helmets should be of very bright colour such that they can, depending on the nature of the racing environment, be very easily seen. Reflecting (fluorescent) colours are highly recommended. If relevant any countries legal requirements will take precedence over this rule but event Organisers will be required to make this known twelve months in advance. The helmet must comply with one of the following standards:

a) UN ECE Regulation 22.05 (it will be marked with a UN 'E' mark – the first two digits of the approval number will be '05'),

b) UK: BS 6658:1985 (it will be marked with a British Standard 'kitemark');

c) USA: FMVSS 218

d) SNELL M2015

e) Equivalent international specification.(Proof may be required)

B. All drivers shall wear a buoyancy aid to ISO 12402-5 standards (Not less than 50N) or a lifejacket (with at least inherent buoyancy to the above standard). The buoyancy aid/lifejacket should be worn on the outside of racing clothing such that it is obvious to the marshals that a driver is wearing a buoyancy aid/lifejacket. Self-inflatable lifejackets on their own are not acceptable.

C. It is recommended that drivers wear body armour (tested in accordance with EN 1621-1, or similar international standard), and a back protector armour (tested in accordance with EN 1621-2, or similar international standard).

D. Suitable protective clothing covering hands and arms, legs feet and torso must be worn during racing, practice and time trials.

4.3 Drug and Alcohol

A. Drivers will be banned from competing in the race meeting if they are found to be under the influence of alcohol of illegal substances.

B. The limit shall be equal to the race meeting Host Country's regulations.

C. Testing for alcohol will be done by breath testing.

D. All drivers shall submit samples for drug testing if required to do so by an official of the World Hovercraft Federation.

4.4 Junior Drivers

A. Drivers must be aged between 11 and 16 years.

a) The driver must be at least 11 years old to compete.

b) The drivers age on the first practice day of the world championships determines the eligibility of the driver.

c) Drivers aged 13 may choose to enter either Junior colts, or Formula Junior, but not both.

d) If the driver is 14 years old, the driver must compete in Formula Junior.

e) If the driver is 16 years old, the driver is NOT eligible for Formula Junior.

B. Junior Colts

a) Drivers who are aged 11-13 are eligible for Junior Colts

b) Craft Specification as follows:

a. Single engine and a single fan of minimum diameter of 750mm.
b. Any engine (max 30HP recommended), with the thrust limited to 550N (56Kg).

c) A craft may be summoned for test at any time.

d) The static thrust test should be carried out using a verified force gauge, on flat ground (maximum 2% incline in any direction) on a piece of tarpaulin, with a minimum of 2 witnesses doing the test, with driver in the craft and parent looking over. A minimum of 2 X 10 seconds at full throttle with level craft & straight rudders.

e) The average value of the 2 highest test readings must not exceed 578N (59 kg).

f) If a craft exceeds the 578N limit a 5 point penalty will be applied to the Driver´s points prior to next heat.

g) If the craft is fitted with a moveable splitter plate, or other device to vary the thrust or lift, then 2 readings shall be taken at minimum and maximum positions.

C. Formula Junior

a) Drivers who are aged 13-15 are eligible for Formula Junior

b) Craft Specification as follows:

a. Single or twin engine. Thrust fan of minimum diameter of 750mm.
b. Any engine (max 45HP recommended), with the thrust limited to 900N (91.5Kg).

c) A craft may be summoned for test at any time.

d) The static thrust test should be carried out using a verified force gauge, on flat ground (maximum 2% incline in any direction) on a piece of tarpaulin, with a minimum of 2 witnesses doing the test, with driver in the craft and parent looking over. A minimum of 2 X 10 seconds at full throttle with level craft & straight rudders.

e) The average value of the 2 highest test readings must not exceed 936N (95.5kg).

f) If a craft exceeds the 936N (95.5kg) limit a 5 point penalty will be applied to the Driver´s points prior to next heat.

g) If the craft is fitted with a moveable splitter plate, or other device to vary the thrust or lift, then 2 readings shall be taken at minimum and maximum positions.

D. A responsible adult shall supervise the Junior drivers and be present during scrutineering and briefings.

E. Team racing is allowed in Formula Junior and Junior colts and only this formula.

a) Junior Teams must be genuine schools, college or youth groups.

b) Junior Teams may have a maximum of 4 drivers.

c) Junior Drivers cannot be in more than one team or if they choose to be in a Team cannot race as an individual.

d) Teams must register the names of all Drivers when initially registering to take part in the World Championship.

e) Teams must inform the organizers prior to any race, time trials or practice who the Driver will be. (This is to ensure that the organizers know at any time, for health and Safety reasons etc, who is actually participating).

f) As time trials will determine the first grid position the Team Driver with lowest time will start the first race.

g) Each junior driver is entitled to a time trial of 9 laps BUT it is up to each team to decide how to achieve this during the appropriate time trial period.

5. Driver Numbers

A. Racing numbers are specific to drivers and will be issued by the Host country. No driver is to race on any other number than the one issued to him.

B. Drivers numbers must be displayed on both sides of the craft on fan ducts or on boards fixed to the duct. Driver numbers shall be black or white on a contrasting background and have minimum dimensions of 250mm high x 25mm line thickness.

C. Drivers numbers may be provided by the WHF or organising National Body and may carry a sponsors name. The size must conform to 5.B above.

6. Insurance

A. All Drivers must insure their craft according to National regulations. No craft can operate without insurance.

B. The receiving National Body must insure itself against all non-racing third party risks.

C. Where possible the organising National Body should attempt to arrange an overall racing insurance policy.

7. The Race Course

7.1 The Paddock

A. The paddock boundaries must be physically defined and specified by a map or at the Drivers briefing.

B. As the public may only be admitted to the paddock at certain times, it is the Driver's responsibility to see that his support team and family:

a) have the necessary passes for paddock entry;

b) are aware of any restrictions;

c) abide by the ruling of the Marshals.

C. Unless stated in the meeting regulations or permission has been expressly obtained to the contrary, drivers must not allow their engines to be tested on full, or near full, power in the paddock. There will be a designated area for static testing.

D. No craft may be driven faster than walking speed in the paddock.

E. It may be necessary to park trailers and cars outside the paddock and drivers must follow the marshals instructions.

F. Engines shall not be run in the paddock during specific times when public have entry to the paddock.

7.2 Grid

A. Start grids shall have a minimum distance of one craft width between each craft in a row and, except in exceptional circumstances, have a minimum of one craft length between rows.

B. There shall be 10 metres of clear course between the front row of the grid and the first obstacle or change in direction.

7.3 The Course

A. The course must be described by the meeting regulations or by the Race Director at briefings.

B. Flexible materials should be used for race course markers.

C. A no-mans land, of not less than 7 metres, should be provided between the edge of the race course and spectator areas.

D. Secondary safety devices shall be designed so as not to lift craft that hit them.

E. The public will be banned from the course whilst craft are operating.

F. At each race meeting, each competing Country will elect a representative who will consult with the organisers in respect of safety of the race course. The representatives must be qualified drivers or recognised National Officials.

G. For penalties involved with course cutting, see 9D.

a) The Race Director will be supported by at least 2 officials who will observe if drivers complete the course.

H. All Marshalling posts shall be equipped with fire extinguishers of 5 kg minimum weight.

8. Race Procedure

8.1 Flags

A. All flags should be at least 450mm x 225mm and must be clearly visible from the course.

Flag in Use	Purpose
National Flag	Start of Race
Stationary Yellow	Warning of Danger
Waving Yellow	Slow down and Prepare to Stop
Red	Race Stopped - Craft Stop
Yellow with Black Diagonal Cross	Race Leader on Last lap
Black & White Chequered	Finish of Race
Black together with Number Board	Craft Bearing that Number to return to paddock (only given by Race Director, their Deputy or a designated Scrutineer)

Table 8-1:- Flag Designations

B. Other flags may be used for other purposes but their use must be made clear at the Drivers briefing.

C. Only Marshals designated by the Race Director or Chief Marshal are permitted to use Course Flags during a race. Flag Marshals must ensure that neither spectators nor racing drivers pick up and use Course Flags during a race.

8.2 Grid

A. The drivers position on the grid shall be determined by:

a) First Race: (Results from Time Trials See 16 Appendix – E)

b) Further races: Points accumulated during the event

B. Drivers who arrive on the start grid after the showing of the two-minute board will be placed at the back of the grid.

8.3 Starting the race

A. No race shall be run before the previously printed time.

B. Boards and an audible signal shall be used to notify the drivers of 10, 5, 2 and 1 minute to go before the start of a race. The numbers shall be a minimum of 300mm high and 30mm thick and shall be black on a white background or white on a black background.

C. The race may be started by either the national flag, or a starting system of lights may be used.

8.4 Finishing the race

A. The race will finish for each craft as they pass the black and white chequered flag or 3 minutes after the winner finishes.

B. Once the leading craft has passed the finishing line, the finish flag will remain shown for 3 minutes, unless all the craft are off the course.

C. To qualify as a finisher, Drivers must have completed at least one third of the whole number of laps. In the event of a red flag each Driver will be deemed to have completed their number of laps after applying rule 8.6D.

8.5 Red Flag

A. A race shall be stopped (red flagged) if an incident occurs which poses a danger to drivers, spectators or others, or when medical assistance is required on the course. If a race is stopped the following will apply:

a) Less than one third of the whole number of laps completed by the race leader:

RACE RE-RUN

b) More than one third of the whole number of laps completed by the race leader:

NO RE- RUN See 8.6D

c) All re-runs will use the original starting grid and the original race length or time.

d) In exceptional circumstances the number of re-runs may be decided by the Race Director.

e) The re-run may be postponed to allow another scheduled race to be started. Paddock signs will be used to inform drivers of the start time of the rescheduled race.

8.6 Scoring and Results

A. Lap scoring will be done by at least three persons and always by an odd number.

B. Results shall be displayed for public viewing either electronically during the race or as soon as possible after the race and shall become final one hour after public release. The release time must be stated on the results. Any protest must be made I.A.W WHF007.

C. The points awarded for each race shall be:

Points Awarded		
1st 25 points	2nd 20 points	3rd 16 points
4th 13 points	5th 11 points	6th 10 points
7th 9 points	8th 8 points	9th 7 points
10th 6 points	11th 5 points	12th 4 points
13th 3 points	14th 2 points	All other drivers completing the race will be awarded one point

Table 8-2:- Points

D. If a race is completed due to a red flag being shown, the following will apply:

a) Each driver still in the race will have added to his lap score the number of laps the Race leader required to finish the full race.

b) The driver(s) for whom the red flag was shown will remain with the number of laps that they have completed.

E. In the case of a protest the results of that race will still be posted but have Provisional written on them.

F. Representatives of National Governing Bodies will have access to official lap scoring charts.

8.7 General

A. All craft eligible to enter a race will be allowed to enter that race at any time during the race, providing that Race Marshals supervise entry to the course to ensure safety. Such late starters in any race shall be deemed to have started the race on passing the start line for the first time.

B. Drivers in difficulty on the course must raise one arm vertically to warn other drivers.

C. Additional regulations may be added. These will be given to drivers at a briefing or in writing.

9. PENALTIES

A. The Race Director has the power to penalise drivers in the case of inconsiderate, reckless or dangerous driving or any other infringement of the rules. This could be as a result of a complaint, or from observational by the Race director, Marshals, or Observers. A verbal warning will be given by the Race Director and any of the following penalties may be applied:

   a) The driver may be placed at the back of the starting grid for the next race.

   b) The driver may be disqualified from the race and therefore lose any points gained in that race

   c) The driver may be disqualified from the race meeting and may lose all points gained at that meeting.

   d) Points may be deducted.

   e) Any other penalty.

B. F50 Penalties

   a) Any craft found to not comply with the exhaust regulations will have all points removed upto the point of test.

C. Sinking Craft

   a) The driver/team will lose all points for any race in which the hovercraft is considered to have sunk.

   b) Craft which are considered to have sunk will not be permitted back onto the course until they have passed a flotation test to the satisfaction of the Chief Scrutineer. The test will only be carried out when it is convenient to do so and only if the programme permits.

   c) Failure to pass the flotation test will require verifiable remedial work and a successful re-test before the craft is permitted to operate again.

D. Cutting the Course

   a) Drivers who try to gain race positions or time by missing part of the course will be penalised by the removal of one lap from their lap chart position per occurrence.

   b) Drivers who hit course markers may be penalised by the removal of 1 point for each occurrence.

   c) Drivers who drive over or inside course markers may be penalised by the removal of 5 points. Up to the number of points gained in that race.

10. World Championship Races

10.1 Practice

A. Two separate practice periods of at least 15 minutes each shall be allocated prior to each day's racing. The periods will be separated by a 30 min time interval. Juniors will be allocated a minimum of 15 minutes practice time prior to each day's racing.

10.2 Classification

A. For a race to be classed as a World Championship it must:

a) Be agreed by the WHF Governing Body. The WHF reserve the right to inspect proposed Championship sites prior to approval being given. See Section 15 Appendix - C.

b) Except under exceptional circumstances be raced over a course which includes land and water.

c) Have a mass start, in line abreast or by grid system dependent upon room as indicated in para 7.2

d) For a formula to qualify as a World Championship there must be at least 8 competitors at the final registration date. When less than 8 competitors, ***craft may be entered into the most appropriate formula, however points may not be awarded***. When less than 8 competitors in a formula arrive at the event it may be possible that 2 formulae are run concurrently (at the same time). This will be by agreement between the Organizers and the WHF.

e) Where the number of craft in a race will exceed safety or logistic limits, heats may be run. See 13:- Appendix - A.

10.3 Limitations

A. No craft shall carry a passenger.

B. Deleted

C. A driver must not change craft during a race. A red flag re-run is classed as a continuation of the original race, therefore a change of craft will not be permitted in the re-run.

D. World Championship race meetings shall be held over two or three consecutive days and except under exceptional circumstances, at least two races, per day, per formula will be run.

10.4 Awards

A. Prior to the first race of an event, the organisers will display a list of the awards and races which count towards the appropriate awards.

B. The World Champion in each formula is determined by the driver who accumulates the most points in that formula over the duration of the World Championship Event.

10.5 Protest Procedure

A. Should any driver need to appeal or protest, he/she should refer to WHF007 Appeals Procedure.

B. If a protest is lodged which will affect podium positions (1st, 2nd, 3rd), a special meeting of the WHF board shall be convened before the presentation ceremony to consider the protest. The decision of this board will be final.

11. Noise Limits

A. The maximum noise level is 93dBA

B. The sound level of the majority of craft in a race will be measured.

C. Flyby sound measurements will be taken during racing at a distance of 25 metres, with an instrument at a height of 1.2 metres (+/- 1 metre) above the ground. Any craft exceeding the noise level stated must take a static noise test.

D. Static noise measurements shall be made at a distance from the craft of 25 metres with an instrument set 1.2 meters (+/- 1 metre) above the ground. The craft will be positioned in a fixed position on flat open grassland with all engines on maximum power. Measurements will be taken on all four corners of the craft.

E. Any craft exceeding the maximum noise level will be reported to the Race Director who may prevent the craft from further operation until remedial action has been taken and a subsequent noise test shows that the craft is below the maximum noise level.

12. Anti-Social Behaviour

A. It is the responsibility of National Governing Bodies to ensure the correct social behaviour of all their drivers, families and supporters and to penalise behaviour liable to bring the sport into disrepute.

13. Appendix A:– Procedure For Running Heats

13.1 Heats

A. Where the number of craft require that two heats are needed, the following procedure shall be adopted:

RACE 1 From Previous results (Timed trials)	
Heat 1A	**Heat 1B**
1st; 3rd; 5th; 7th; 9th etc	2nd; 4th; 6th; 8th; etc
RACE 2 From results of Race 1	
Heat 2A	**Heat 2B**
1st in Heat 1A	2nd in Heat 1A
1st in Heat 1B	2nd in Heat 1B
3rd in Heat 1A	4th in Heat 1A
3rd in Heat 1B	4th in Heat 1B
etc	etc
RACE 3 From results of Race 2	
1st in Heat 2A	2nd in Heat 2A
1st in Heat 2B	2nd in Heat 2B
3rd in Heat 2A	4th in Heat 2A
3rd in Heat 2B	4th in Heat 2B
etc	etc
RACE 4 From results of Race 3	
1st in Heat 3A	2nd in Heat 3A
1st in Heat 3B	2nd in Heat 3B
3rd in Heat 3A	4th in Heat 3A
3rd in Heat 3B	4th in Heat 3B
etc	etc

B. If more 4 heats are required they will be organised in the pattern as defined above.

C. The following points structure shall be used for scoring the heats: (The standard point structure shall be used for the final).

Points Awarded		
1st 20 points	2nd 18 points	3rd 16 points
4th 14 points	5th 13 points	6th 12 points
7th 11 points	8th 10 points	9th 9 points
10th 8 points	11th 7 points	12th 6 points
13th 5 points	14th 4 points	15th 3 points
16th 2 points	All other drivers completing the race will be awarded one point	

13.2 Final

A. No heats will be run.

B. The race organisers will determine the maximum number of craft which will be allowed to start the race.

C. Grid positions will be decided by the total number of points gained by the drivers in their 3 heats. Where points are equal positions will be decided by data from 14 Appendix –B

D. Drivers without sufficient points to be classified will be placed at the end of the grid positioned at the discretion of the Race Director.

14. Appendix B:- Procedure For Deciding Race Positions

A. This procedure shall be used for deciding race meeting positions or Championship positions when equal points are scored by drivers. The rules shall be applied in the order shown.

- Rule A:- The driver with the most number of first places in all single races throughout the Championship will have the advantage.

B. If the drivers are still equal then:

- Rule B:- The driver with the most number of second places in all single races throughout the Championship will have the advantage.

C. If the drivers are still equal then:

- Rule C:- The driver with the better points in the last race of the Championship or the better points in the final race of the Championship will have the advantage.

15. Appendix C:- Approval For World Championship Races

A. The proposed site should previously have hosted a significant Hovercraft racing event.

B. The WHF reserve the right to inspect potential sites in the 9 - 12 month period prior to the event. At this time conditions regarding any improvements to the site or organisational structure may be laid down. These improvements must be proved to have been undertaken by video presentation or documentation six months prior to the event.

C. Video proof of Hovercraft using the site will be needed four months prior to the event.

D. The WHF reserve the right to withdraw the approval for a World Championship event up to three months prior to the event.

16. Appendix D:- Time Trials Format For First Race Grid Position

A. Each Driver will be allowed 9 laps in a specific period for their formula. Their best lap time will count towards their first grid position in the Championships. It is up to the driver to complete their laps in the specified period. Under no circumstances will extra time or attempts be permitted unless this is as the result of the organiser's inability to record lap times.

B. If drivers are competing in more than one formula they must record a time in each formula session. They cannot use times from other periods in a different formula.

C. Drivers are allowed a free choice on when they take their laps within the specified time periods for their formula.

D. A specified maximum number of craft will be allowed on the course at any one time and it is the driver's responsibility to manage their laps within this restriction.

E. Lanyards will be tested before each attempt.

F. Each craft is allowed a maximum of 9 laps. This includes out laps and in laps. Any driver exceeding 9 laps will forfeit their fastest lap times.

G. It is the driver's ultimate responsibility to count the number of laps they have completed.

H. If during a formula time period the red flag is shown the time period clock will be stopped and re-started after the incident has been dealt with. Any driver on the course on their out lap or timed lap when the red flag is raised will be given those laps back to use again when the time period re-commences.

I. Drivers failing to register times in the allocated period for their formula will be placed at the back of the grid. If more than one driver is in this situation their positions will be drawn at random.

J. All laps will be timed and recorded.

17. Appendix E:- Hirth Exhausts

HIRTH

Hirth-Information

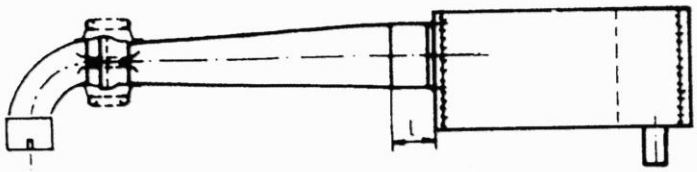
Mitteilung-Nummer: **0060**

Inhalt: **Exhaust System Assemblies**
(2-cylinder- and 4-cylinder engines)

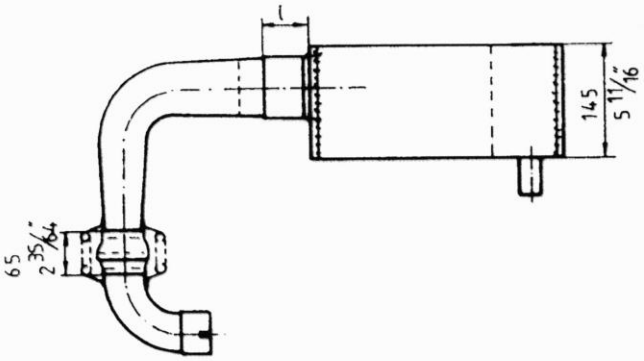
Datum: 12.06.2002

Basic System:

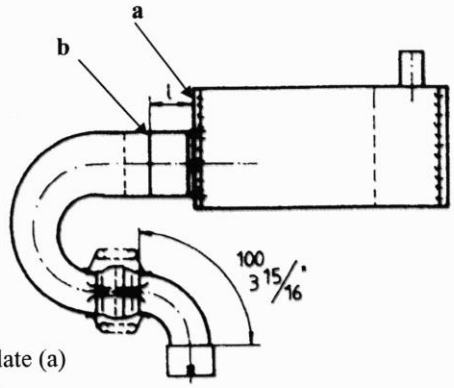
Version 1 (Straight Version):
278 T13U



Version 2 (90° Bow Version):
278 T14U



Version 3 (180° BowVersion):
278 T15U



Note:
The lenght „l" is from the top plate (a)
to the middle of the welding (b)

0060 engl. (Auspuffsystem Übersicht 2 + 4 Zylindermotoren).doc 7.11.2008
Technical one subject to change

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Component Part Numbers:
Manifold: 278A1U Silencer: 278E4U
Diffuser Cones: 278T19U (Straight), 278T20U (90deg), 278T21U (180deg)
Manifold to diffuser Connectors: 278E19U (90deg), F308A7U (Straight)
Distance (L) (See above) for all configurations = 30mm