Race Rules and Regulations

2018

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H1 2018 Rules and Regulations

RULE I • POLICY

A. SPIRIT AND INTENT

Guidelines offered in this rulebook are subject to the term "spirit and intent" and apply to the technical aspects of powerboat racing as well as to the actions of drivers, crew members owners and race site promoters. It is expected that all participants shall adhere to the spirit and intent of these rules. These are guidelines for fair and equitable competition. They are not the basis to "read between the lines" in order to circumvent the intent. The "spirit and intent" clause allows the Chief Referee to make decisions and resolve disputes in a timely manner. If you are contemplating a technical undertaking that is not directly addressed in these rules, please contact the H1 office to make sure it is legal and shall be allowed.

B. DISCLAIMER

These rules shall govern all H1 sanctioned or promoted events and, by participation in these events, all entrants are deemed to have understood and complied with these rules. No express or implied warranty of safety shall result from publication of, or compliance with, these rules and regulations. They are intended as a guide for the conduct of the sport and are in no way a guarantee against injury or death to participants, spectators, or others.

RULE 2 • GENERAL

A. RULES ENFORCEMENT

H1 reserves the right to take whatever action it deems necessary to enforce these rules, including but not limited to, impounding any boat, parts, components and/or systems for inspection purposes.

B. EXCLUSION OF PARTS

H1 Board of Directors shall act upon recommendation from the owners committee to prohibit the use of any part, component and/or system it deems shall give a team an unfair competitive advantage.

C. COMPETITION DIRECTIVES

1. H1 may publish Competition Directives (CD) during the racing season to amend, clarify or interpret these rules.
   (a) A Competition Directive shall become effective upon the date of publication by H1, regardless of when a competitor receives actual notice.

D. MEETINGS

1. H1 shall conduct meetings periodically with competitors during the racing season.
   (a) Attendance shall be determined by the agenda.
   (b) Only owners of record of currently registered boats and drivers of record shall be allowed to attend their respective meetings. No proxy representatives shall be allowed for owners and drivers.
   (c) Proxy representatives shall be allowed to substitute for team manager/crew chief.
   (d) With the approval of the owners group one additional person may be allowed to sit in the meeting to aid in communication. This person may be a co-owner but shall not be allowed to vote for the team.

E. AUTOGRAPHS

1. Attendance at driver's autograph sessions hosted by the host race promoter shall be mandatory for all competing drivers.
2. Permission to miss a session may only be granted by the Chief Referee.

F. ADDITIONAL CLASSES

1. Race promoters desiring to schedule additional classes of boat racing shall advise H1 of such intentions no less than 60 days prior to event.
2. Additional classes shall be responsible for obtaining all necessary sanctions, insurance papers, and must be full members of H1.
3. Promoters shall be responsible for any H1 supplies/equipment damaged, consumed or destroyed by “additional classes.”

G. RULE BOOKS

1. Each team owner shall receive three (3) Rule Books.
2. Each Race Site shall receive two (2) Rule Books.
3. Rule books are available for purchase at $20.00 each.

H. Alcohol and Controlled Substance Policy

1. H1 shall enforce a **zero tolerance** policy regarding the use of alcoholic beverages and controlled substances.
2. All participants associated with a sanctioned H1 Unlimited event are prohibited from consuming any alcoholic beverage, or using controlled substances during all sanctioned periods of an event starting with the first activity each day of the published schedule to 30 minutes after the last scheduled activity.
3. All participants are prohibited from entering the cold pit, hot pit and any restricted areas after having consumed or while under the influence of alcohol or controlled substances.
4. This rule includes race officials, volunteer workers in controlled or restricted areas, team owners, drivers and crew members and all H1 members or participants.
5. The use of any alcoholic beverage or controlled substances is strictly prohibited and shall be enforced by random testing.
   (a) Random testing may be conducted at any time.
   (b) Failure to cooperate with a test shall result in the revocation of credentials for the remainder of the event and result in a mandatory 60 day suspension from any and all H1 events and functions.
6. Anyone who is found violating this rule shall be subject to a $1000 fine, revocation of all credentials and event access and may face up to a one year suspension from the sport, as directed by the Chief Referee and/or Chairman of H1 Unlimited.
7. This rule shall apply to the unauthorized use of any controlled substance or non-prescribed controlled substances.
8. Drivers and Officials shall also be subject to the provisions of existing Rule 9/A.

RULE 3 • RACE SITE

A. RACE COURSE

1. It is recommended that there be a minimum clearance of 600 feet from entrance buoy to the nearest projection or shore point. Variations must be approved by the Chief Referee.
2. There shall be an escape route outside each turn, in which no spectator boats shall be permitted. This area shall extend from the entrance buoy of each turn to the apex of that turn and shall encompass half of the turning area.

3. A description of the course size and dimensions (survey chart or diagram preferred) shall be submitted with the sanction application for approval by the Chief Referee.
4. Any new race course, race course layout and/or change to an existing course are required to be approved by the Chief Referee.
5. If a promoter wishes to have a course approved for UIM records, a registered land surveyor must be on site during such events and shall be able to certify the course for record application.
6. Minimum water depth of ten (10) feet.
7. Closed course: spectator fleet must be kept a minimum of 1,000 feet away from outer course markers (buoys).

B. BUOYS

1. For all courses, a minimum of five (5) buoys shall be at each turn. The minimum number of buoys in each straightaway shall be five (5) for a 2-1/2 mile course; four (4) for a 2 mile course; and three (3) for a 1-2/3 mile course. H1 shall supply the required minimum number of buoys.
2. All buoys shall be in place at all times during the event. Should all buoys not be in place, it shall be the duty of the Chief Referee to determine if the times taken shall be official times.
3. No records shall be set when any course buoy is missing or out of place.
4. All race courses shall have outer course markers that mirror the inner course markers as close as possible.
5. All course layouts must be approved by the Chief Referee.
6. All buoys are to be inflated to manufacturer's specifications, not more than 0.5 psi.
   (a) Overinflation may result in rupture due to solar heating.
   (b) The top of the buoy must remain depressable with a soft touch.
   (c) Correct inflation is also indicated by contact between all three lower corners of the buoy and the ground.
7. The tether attached to the "D" rings on the bottom of the tetrahedron buoys are to be loosely attached with Tie Wraps that do not exceed 100 lb tensile strength one on each "D" ring.
   (a) The tether or anchor line must not pass through the "D" rings.
   (b) The tether must be attached to the anchor line with the supplied caribiners without exception.
   (c) The caribeners must be returned to H1 with the buoys.
8. The site is responsible for obtaining the race course buoys from the Tech Truck following its arrival and set up at the site.
9. The site is responsible for deploying the buoys on the race course with correct color placement in a timely manner so as not to delay opening of the race course on any day of the event.
   (a) Red eight (8) foot tetrahedron or four (4) foot by eight (8) foot white cylindrical buoy with markings used for start/finish line inside and outside
   (b) Orange five (5) foot to eight (8) foot tetrahedron used for course markers
   (c) Yellow eight (8) foot tetrahedron used for corner entry and exit buoys
   (d) White five (5) foot tetrahedron used for outside insurance marker buoys
   (e) Green five (5) foot tetrahedron used for auxiliary racecourse buoys
   (f) Green five (5)foot tetrahedron with orange stripes used for auxiliary racecourse corner entry and exit buoys
   (g) Orange eight (8) foot tetrahedron with yellow stripes used to define the on course designated safety zone (DMZ).
10. The site is responsible for returning the buoys to the H1 Tech Truck after the race, inventoried, deflated by removing all air with a vacuum, re-insert the plug to protect the threads, tightly rolled in a manner depicted in the instruction sheet on each buoy box, with the carbineers attached to the tether, and packed in the buoy boxes.

C. PIT AREA

1. H1 retains the sole authority for the rules governing the areas designated as the "hot pits", including but not limited to the persons and items allowed therein. SITE shall retain full control of the area for liability, security, public safety and ownership purposes. Anyone failing to adhere to the following restrictions shall be required to leave the pit area, and their pass shall be confiscated: no alcoholic beverages, no smoking, children under 16 must be accompanied by adult. Other pit area procedures are as follows:
   (a) Official H1 credentials and passes approved by H1 and issued by SITE for the hot pit area are the only credentials that shall be accepted for pit and race control admission
   (b) ALL credentials shall be validated to indicate the holder has signed a waiver prior to entry into Hot Pit Area or being allowed to enter Race Course Controlled Area.
   (c) Only validated credentials shall be allowed in restricted areas and on the course.
   (d) Personnel with special credentials issued by H1 Unlimited shall be the only personnel allowed on the race docks/piers/pontoons.

D. COMPLIANCE

1. Failure to comply with terms of Rule 3 shall be grounds for the Chief Referee to immediately halt all activity until full compliance is achieved.
   a) Repeated failure to comply with terms of Rule 3 maybe grounds for the Chief Referee to immediately halt the race and order cancellation of the event.

RULE 4 • RACE PROCEDURES

A. TESTING AND TIME TRIAL PROCEDURE

1. A Testing and Time Trial Period of not less than one day for a two day event, or two days for a three day event (weather or site conditions permitting) shall be made available to H1 by the promoter.
2. The Chief Referee or his designee must be at the race site during testing/time trials.
3. Testing:
   (a) All lap times shall be recorded to be used In the event that the time trial period is canceled due to weather, boat damage or water conditions.
      (i) These times shall then be used to determine eligibility to compete without using Chairman's Option (See 5(a) below).
   (b) A minimum of one hour testing shall be provided on Sunday morning.
      (i) Boats may record official time trial times during this period at the discretion of the Chief Referee. The time trial boat shall not be given exclusive use of the course.
   (c) A minimum of two (2) hours testing shall be provided on the first day of the event, weather and site conditions permitting.
      (i) Less than two (2) hours of testing must be approved in advance by the Chief Referee at request of Promoter.
   (d) A minimum of two (2) hours testing shall be provided on the second day of a three (3) day event, weather and site conditions permitting.
      (i) Less than two (2) hours of testing must be approved in advance by the Chief Referee at request of Promoter.
   (e) The number of boats allowed on the course at one time for testing shall be set by the Chief Referee.
4. Time Trials:
   (a) One – approximate two (2) hour Time Trial Period shall be scheduled for the first day (usually Friday).
   (b) The scheduled Time Trial Period shall be sufficient to give all boats two (2) opportunities to attempt a time trial.
      (i) At the discretion of the Chief Referee the remaining time may be turned into a testing time.
      (ii) The Chief Referee or his designee shall establish the official end time of the period at which no further hulls may be launched.
   (c) The order in which boats attempt a run in the first Time Trial Period shall be determined by reverse order of National Points for current season, or previous season for the first event of the year. If a boat/team decides to pass on its scheduled first attempt, the "pass" shall be counted as the first attempt.
   (d) The order for the remaining time shall be open on a first come, first serve basis, and teams shall not be permitted to keep their boat hanging over the water or otherwise tie up a crane.
   (e) Each boat shall be allowed a maximum of three (3) laps for Time Trials. The boat running a time trial shall have exclusive use of the course for their run.
      (i) Each boat shall be given the GREEN flag the first time past at speed to signify the start of the time trial lap, and at the end of the first lap to signify the start of the second lap.
      (ii) At the end of the second time trial lap, each boat shall be given a WHITE flag to signify the start of the last time trial lap.
      (iii) At the end of the third trial lap, each boat shall be given a CHECKER flag to signify the end of the run.
         (a) Said boat shall return immediately to the pit area or be subject to a fine of no less than $100.
      (iv) Boats attempting to qualify during this Time Trial Period shall not use the laps for

any testing or timing runs. If it is determined by the Chief Referee or his designee that a boat is not running at a speed that shall qualify or improve time, or is attempting to prevent other boats from attempts in the allotted time, the Black Flag may be displayed and the boat shall immediately return to the pits or be subject to a fine.

(f) The next boat in order (ladder) shall begin its time trial runs within a designated time period stated at pre-water activity drivers meeting (not to exceed 5 minutes). Clock Starts when the previous boat takes the checkered flag unless changed by the Chief Referee and announced before the session starts.
    (i) Boats not leaving the dock under power at the end of the designated period shall be placed at the end of the established order.

(g) After completion of the Time Trial Period, National High Points shall be awarded and applied to the event total points in order of time trial speed as indicated below:
    (i) First Place - 100 Points; Second Place - 80 Points; Third Place - 70 Points; Fourth Place - 60 Points; Fifth Place - 50 Points; Sixth Place -40 Points; Seventh Place through last place - 30 points each.
    (ii) Points and money shall be awarded based on time trial speed for the hull that is raced in Heat 1 on race day in the event an owner qualifies both a primary and a back-up hull.
    (iii) Boats must have time trial speeds during the time trial period to be awarded time trial points and monetary awards.
    (iv) Points awarded from the Time Trial Period shall apply to determining eligibility for the Final Heat.

(h) For the purpose of this rule, it shall be the hull that is qualified, regardless of the name, number, sponsor, or driver.

(i) All boats must complete time trial runs or make a reasonable attempt at time trials to be eligible for prize money.

(j) The fastest legal lap speed recorded during the Time Trial Period shall be recorded as the official time trial speed and shall be used to determine Fastest Qualifier and the final Time Trial Order.

(k) Boats not competing in the Time Trial session or boats that have had a Time Not Recorded (TNR) due to a Fuel Flow or N2 violation, but have achieved a minimum lap of 130 MPH during testing or Time Trial Period, shall be placed at the bottom of the Time Trial Order by speed.

(l) If additional Time Trials are allowed for any reason on the second day (Saturday), speeds recorded shall be for “last chance” qualifying.
    (i) Minimum Qualifying speeds attained outside the Time Trial Period shall be allowed but shall not be used to change the official Time Trial Order.

(m) All hulls shall meet a minimum speed of 130 MPH to be considered ‘qualified.’
    (i) Boats not meeting a minimum speed of 130 MPH during either testing or Time Trial may choose to exercise Chairman’s Option in Rule 4/A5 below.

(n) An owner of two fully registered hulls may run under either registered U-number, but shall, within one-half hour after the scheduled time trial period ends, notify the Chief Referee and declare which hull shall run with which number during the heats of racing. That hull shall run with that number the remainder of the event.

(o) Change of hulls during the event for the purpose of gaining National Points is not allowed. Once a hull number has made a start in any heat that hull number may not be transferred to another hull for the duration of the event.

5. Chairman's Option: Each owner of registered hull shall have the right to exercise two (2) Chairman's Options (CO) per racing season.
   (a) When an owner uses a Chairman's Option, he shall be allowed to compete in the race without participating in the above Time Trial procedure.
   (b) The Chairman must approve of the use of each Chairman's Option before it may be used.

(c) No boat using a Chairman's Option shall "bump" a boat that qualifies by the above procedure from the qualifying heats.
(d) Boats using the Chairman's Option shall receive no points for time trials and shall be assigned to all Qualification Heats by the Chief Referee.
(e) Boats using the CO shall be placed at the bottom of the Time Trial Order.

6. Time Trial Option: (Applies only to an owner who has registered back-up hull present at the event. See Rule 7/B 2 and 6). Each owner of a registered hull shall have the right to exercise two (2) Time Trial Options (TTO) per racing season.
   (a) Should the qualified hull be damaged prior to the start of Heat 1A, a back-up hull shall be allowed to compete without running in the above Time Trial procedure.
   (b) This back-up hull shall assume any time trial position, moneys, and points earned by the qualified hull.
   (c) This back-up hull must meet all safety and technical rules and must pass Safety inspection prior to racing.
   (d) Should the primary hull not run in time trials, the back-up hull must run.
   (e) Should neither hull participate in time trials, then a Chairman's Option may be used.
7. In order for a boat to qualify for a Chairman's Option or a Time Trial Option, the hull must have qualified at a previous event.

B. WHAT CONSTITUTES A RACE

1. All races except the GOLD CUP shall be standardized and consist of:
   (a) Three Qualification heats.
   (b) One Provisional heat (optional)
   (c) One Final Heat.
2. All Qualification heats shall be determined by a blind draw.
3. Provisional Heat (Optional) - Boats not seeded to the final shall be eligible to run in the provisional heat.
   (a) Provisional heat shall be three (3) Laps.
   (b) No points are awarded for the Provisional Heat.
   (c) The winner of the Provisional Heat shall start as the provisional starter in the Final Heat.
   (d) The Provisional boat shall not occupy the inside lane (Lane 1) at any time prior to the start.
   (e) The Provisional boat shall not interfere with the five or six front row Final qualifiers during their maneuvering for Lane 1.
   (f) Any boat qualifying for the Final Heat via the Provisional Heat unless allowed to move up shall follow the Final Heat Qualified boats past the commitment buoys after the one-minute period has begun.
   (g) The Provisional boat shall start five (5) seconds after zero zero (00) on the starting clock, unless a different time has been designated by the Chief Referee.
   (h) The Provisional boat may occupy any open lane at the start.
   (i) The Provisional boat start shall be independent of any other boat who may be late on the start.
   (j) The Provisional boat shall be penalized for jumping the gun (JG) if it crosses the start/finish line prior to its mandated start delay time per item (g.) above.
4. Final Heat - The Final heat field shall consist of those boats accumulating the highest point totals from the Time Trial Period and qualification heats, plus the winner of the provisional heat as the provisional starter if a provisional heat has been run and completed.
   (a) Final heat shall be five (5) Laps.
   (b) Time trial order shall be used to break any ties on points for determining eligibility for the Final Heat.
   (c) The number of boats competing in the Final Heat shall be announced by the Chief Referee at the drivers' meeting.
   (d) Should the number of boats starting on the first row be reduced for safety reasons,

those moving to the second row shall be the boat with the lowest point total first, the boat with the second lowest point total next, and so on in that order. The Alternate Boat(s) shall start on the 2nd row unless there are not enough competitors to fill the front row, at which time the Alternate(s) 1st, 2nd, 3rd shall be allowed to move to the front row until it is filled.

(e) In the event that the final heat does not consist of a full field, and there are no longer any eligible boats from competition to fill the field, and a boat that was damaged in previous competition has a registered back-up hull available, then the back-up hull may be allowed to run in the final at the discretion of the Chairman of H1 under the following conditions.
   (i) The back-up hull shall start 10 seconds after the clock reaches 00 for the start.
   (ii) The back-up hull shall not advance position until the completion of the first lap.

(f) Per the Chief Referee as announced at the Drivers Meeting, it is the intent to run a full field for all races. If a provisional race is not run it shall be the prerogative of the Chief Referee to award the Trailer Boat to the next Boat in line by cumulative points should a tie exist it shall be awarded to the fastest qualifier.

(g) Once the final field has been established there shall be designated a 1st, 2nd, and 3rd alternate for the Final Heat from the remaining competitors.
   (i) The Alternate Boat(s) shall be allowed to compete in the event of the withdrawal, disqualification, or inability of a qualified final heat entrant to compete.
   (ii) The eligibility of the Alternate(s) shall be made in numerical order 1st, 2nd, 3rd depending upon the number of positions made available.
   (iii) The 1st Alternate shall be allowed to leave the dock at the five minute gun and remain on the course until all boats are on the course at which time, the Alternate shall return to the pit area prior to the one-minute gun.

(h) The top five (5) finishing drivers from the Final Heat shall report to the series sponsor's awards stage and podium immediately following completion of the Final Heat.
   (i) Failure to do so may result in a fine of $500 for the first offense and shall be progressive for subsequent offenses.

5. The maximum number of boats that may start in one heat or section shall be six plus Provisional, except as provided below:
   (a) The Chief Referee may reduce this figure as necessary in the interest of safety.
6. Those qualified boats having zero (0) points from the qualifying heats shall be eligible for the Final Heat in the following order:
   (a) Those boats making a legal start in at least one qualification heat shall receive five (5) points for each legal start, and five points for each non-penalty lap completed.
   (b) Those boats having zero (0) points from number 1) above shall be eligible for the final heat, in the order of time trials speeds.
   (c) The points from (a) above shall be used only to determine final heat eligibility, and do not apply to national high points.

C. DRIVERS' MEETING

1. The drivers' meeting shall be held at a location determined by H1 on the day prior to the race, or prior to the first heat at multi-day events.
2. The Chief Referee shall conduct the drivers' meeting.
3. The order of business shall be:
   (a) Roll Call. Attendance is compulsory. Only those boats shall compete whose drivers have answered roll call or whose qualified representatives have answered roll call after having obtained permission from the Chief Referee to represent the driver at the drivers' meeting.

(b) Appoint and introduce the drivers' representative.
(c) Introduction of local race promoter and organizer for necessary remarks
(d) Introduction of safety officers for instructions and information.
(e) Information for drivers from Chief Referee:
(i) Course rules. (Designated Safety Zone)
(ii) Safety regulations.
(iii) Race Format.
(iv) Course signals, flags, etc.
(v) Discussion of local rules, etc.
(vi) Election of temporary drivers' representative if permanent representative is not present.
(f) Draw for heats.

4. It is mandatory that all crew chiefs attend all drivers' meetings, unless excused by the Chief Referee.
5. Crew Chief of record: The designation of Crew Chief shall be made in writing to the H1. This designation shall be presented prior to the first race of the season, or at any race when a change in crew chief is made.
   (a) Any changes shall be made prior to the drivers meeting.
6. A drivers meeting shall be held prior to any on-water activity on the first day for the purpose of defining the course, course rules, schedule, procedure, safety zones, local requirements and other pertinent information.
7. Discussion of rules and regulations of the race shall not be covered in this meeting, but at the regular drivers' meeting to be scheduled before the race.
   (a) Every driver shall be represented at this meeting, in person or by an accredited representative. A roll call shall be taken of the contestants.
   (b) It shall be the responsibility of each driver not present to obtain the permission from the Chief Referee to miss the meeting prior to the event.

D. PROCEDURES FOR STARTING A RACE

1. Boats shall be prohibited from running in the designated safety zones defined at the drivers' meeting. All course and patrol boats located inside the course shall be positioned in the safety zone from the beginning of the five-minute warning period to the start of the heat.
   (a) Any boat that enters a safety zone at any time may be subject to disqualification during racing and a minimum $400 fine for doing so during testing and time trials, unless determined by the Chief Referee that it was to avoid a hazard.
   (b) Any boat that forces another boat into the safety zone may be penalized, at the Chief Referee's discretion, by disqualification or disqualification and a monetary penalty.
2. A signal shall be given five minutes before the start of a heat or section.
   (a) Signal may be pit PA announcement and display of flags.
3. A GREEN flag shall be displayed at this time. At the same time, the starting clock shall indicate the time remaining before the official start.
4. No boat shall be allowed to leave the pit area prior to the five-minute warning period. Special circumstances requiring boat(s) to leave early shall be announced at the driver's meeting.
5. After leaving the pit dock, all boats shall maintain a minimum speed of 80 mph.
   (a) The determination of whether a boat is maintaining the minimum speed shall be a judgement call of the referees and is not reviewable or appealable.
   (b) A boat shall be given a five (5) second warning through the communicator in the corral; if the problem is not corrected within five seconds, the penalty shall be imposed.
   (c) The penalty for failure to meet the minimum speed after receiving a warning shall be one minute added to the total heat time for that boat.
   (d) Boats wing video may be reviewed after each heat.
   (e) The GPS light units shall be mounted on the highest point of the main cowling or on top of the rear wing if no main cowling. Must use H1 supplied mounting

bracket. Must be visable by the boats wing mounted camera.

(f) The GPS light units shall be maintained by H1

6. One minute prior to the start of the race, a pit PA announcement shall be given.
7. At this time the GREEN flag shall be lowered and a WHITE flag shall be displayed.
   (a) At the end of the one-minute period, the WHITE flag shall be lowered and the GREEN flag displayed.
8. All boats shall establish their lane at the entrance of Turn 2 (the commitment buoy) and shall maintain that lane and run parallel to buoy line to the Start/Finish line.
   (a) Prior to establishing a lane at the entrance to Turn 2, a five (5) boat overlap shall be in effect.
   (b) The boat who has chosen Lane One shall maintain that lane from the entrance of Turn 2 to the entrance of Turn 1 after the start.
   (c) For the purpose of this rule and reference to starting procedure, Lane 1 shall be defined as the left sponson being from 0 feet to a maximum of 30 feet off the buoy line.
      (i) A boat exceeding 30 feet off the buoy line during the start shall be considered in Lane 2 and encroaching in Lane 1 and subject to penalties as defined in the Penalty Schedule, Appendix D.
      (ii) A boat leaving Lane 1 during this period shall have a seven (7) boat overlap over an inside boat to regain Lane 1.
   (d) A boat that loses power, drops off plane, is no longer making continuous forward progress or is coasting to a stop before reaching the commitment buoy shall lose all right of way.
9. Prior to the start, a driver shall not shut off the engine in an attempt to gain a preferred lane or avoid the minimum MPH rule. Doing so shall be subject to a Level III progressive penalty
10. After passing the start/finish line, the overlap rule takes effect unless stated at the drivers meeting for a safety issue (see J. Right of Way #3 and #3a for overlap rule).
11. If a Boat that is on the front line of a heat and cannot make a start then the trailing boat may advance to the front line but take the outside position on the front.
12. The digital starting clock shall be in place and operational for all Gold Cup and World championship events.
13. The digital starting clock shall be installed and operational at all other events unless extreme conditions or events prevent its use.

E. LATE IN STARTING

1. No boat shall be allowed to leave the pits after the beginning of the one-minute warning period.

F. ILLEGAL START

1. Any boat that crosses the starting line with less than 15 seconds remaining until the start of the race shall be declared an illegal starter and shall receive a 1 minute penalty. ***For starting purposes when the tip of a sponson completely passes the start buoy he will be considered over the starting line. This is the end of the buoy closest to the turn 1. See example on page 76 Appendix G***
2. Video/pictures taken by cameras at the start line shall be used by the referees as an aid in making decisions as to the legality of starts/finishes.
3. Start Line video shall be shown to the Drivers' Representative, if requested, after the day of racing is completed, and the referee has the option to release said video after the completion of the event.

G. VISUAL SIGNALS FOR CONDUCTING A RACE

1. The following flag signals shall be utilized as needed during the course of the race and shall be displayed on the judges' stand, center echo boat and turn boats stationed at the apex of each turn. An additional flag boat may be stationed on the outside (tower side) of

the start/finish line if needed. The following flags are supplied by H1:

(a) RED - which signals that the race has been stopped or postponed. This flag shall, in the case of race stoppage, be displayed and may be supplemented with the discharge of red or orange aerial flares, or similar devices from the judges' stand. Corral communicators shall be notified and must confirm with the drivers. When these signals are displayed, boats shall immediately stop on the race course. The boats shall return to the pits with extreme caution only after the black flag has been displayed. Violations of this rule shall result in a $500 fine for the first violation during the season, and disqualification from the restart for subsequent violations. The red flags provided by H1 are four feet (4') by six feet (6').

(b) YELLOW - which indicates to drivers that there is a hazardous condition on the race course, such as a stopped boat, which should command their attention and caution.

(c) GREEN - indicates the race is under way and is displayed during all laps except the last (or WHITE flag) lap. The green flag has a two (2") inch yellow fluorescent border.

(d) WHITE - the time between the one-minute warning and the start; also signifying the leader has started the last lap.

(e) CHECKER - displayed at the finish of the race to indicate that the boat passing the judges' stand has completed the race.

(f) BLACK with two (2) inch x twenty-four (24) inch YELLOW florescent "X" centered leave course immediately, pull to infield, or return to pits with caution after a race stoppage. The black flag may be given to a specific boat to indicate to that boat it must leave the racing lanes and stop until the completion of the heat for safety or other reasons, as decided by the Chief Referee. The corral communicator for the specific boat shall be notified.

(g) BLUE with YELLOW fluorescent stripe from top pole side to lower outside shall be flown if a possible penalty may be assessed on a participant or participants.

(h) The stake boats provided for under Patrol & Rescue Boat Regulations, stationed in the apex of each turn, shall be provided with RED, YELLOW, GREEN, WHITE, BLUE/YELLOW and BLACK flags at least 4 feet by 5 feet in dimension. These flags shall be displayed when similar flags are displayed at the judges' stand. All course boats displaying flags must use the standardized flags and sizes. The flags are provided by H1 for the required stake boats.

(i) The center echo boat provided for under Patrol & Rescue Boat Regulations, stationed inside the course at the start/finish line, shall be provided with RED, YELLOW, GREEN, WHITE, BLUE/YELLOW, BLACK and CHECKERED flags at least 4 feet by 6 feet. These flags shall be displayed when similar flags are displayed at the judges' stand.

H. STRIKING, MISSING AND PASSING BUOYS

1. A boat that strikes and thereby damages, dislodges or destroys a buoy at any time shall be Level III.
2. A dislodged buoy or debris from a destroyed buoy ceases to be a marker and may be disregarded.
3. When an offending boat forces an unoffending boat into a buoy that is struck and thereby becomes damaged, dislodged or destroyed, then the offending boat shall be. Receive a level III penalty
4. The offending boat shall pay replacement for a damaged or destroyed buoy any time it is on the course, (i.e. Testing, Time trials, or Competition).
   (a) Ten (10) foot Yellow tetrahedron: $750.00
   (b) Eight (8) foot tetrahedron Red, or solid Orange: $650.00
   (c) Four (4) foot by eight (8) foot cylindrical Start/Finish: $750.00
   (d) Eight (8) foot Orange tetrahedron with Yellow stripes: $750.00

(e) Five (5) foot Orange, White or Green tetrahedron: $400.00
(f) Five (5) foot Green tetrahedron with Orange or Yellow stripes: $500.00

5. Times recorded for a lap during which a buoy or buoys are damaged, dislodged, or destroyed shall be null and void for the boat striking the buoy.
6. A boat that misses a buoy(s) after the start (00 on the clock) SHALL NOT enter the infield and attempt to pick up the missed buoy(s). The boat shall safely and legally re-enter the course and continue.
   (a) The penalty for each occurrence of missing a buoy during the heat shall be a Receive a Level III Penalty
   (b)
7. After the heat or section has started, all boats shall go fairly around all inner course markers (pass with buoy on left, or port side of boat).

I. RACE STOPPAGES AND RESCUE/RECOVERY OPERATION

1. The race, heat or section shall be immediately stopped when:
   (a) A driver enters the water.
   (b) A boat has encountered a flip, rollover, or severe impact with the water, even though it remains upright and/or is able to continue. A boat must pass 90 degrees in any direction to constitute a flip.
   (c) In the opinion of the Chief Referee an occurrence, or situation on the race course makes competition hazardous to participants, beyond the usual hazards of competition.
   (d) If any boat competing has incurred a penalty before the stoppage of a heat or section and said heat or section is eligible under Section K to re-start then the penalties shall carry over to the re-start.
2. The Chief Referee or his assistants shall stop the race by having the RED flag displayed, and may supplement RED flags by discharging red or orange aerial flares or similar devices. The corral communicators shall also be notified.
   (a) Similar flags shall be utilized on the other stake boats.
3. The rescue and recovery operations shall be under the direction and control of the Director of Rescue and under the supervision of the Chief Referee.

J. RIGHT OF WAY

1. ***Definition of Overlap is defined as 5 Boat Lengths during the 5 Minute gun. 7 Boat lengths from the time lanes are established until the boats are back to the dock.***
2. Boats that are on the race course and running in established lanes shall have right of way over those not running in established lanes.
   (a) *This right of way shall exist until two straight away buoys have been passed. After that, the standard right of way rules shall apply.*
   (b) A boat leaving the racing lanes shall relinquish all right of way.
3. A boat shall enter the racing lanes in such a manner as not to interfere with any boat or boats that are on the race course and running in established lanes. Failure to comply with this section shall result in a minimum Level III Penalty.
4. In order to establish right-of-way, the following procedure shall be used in overtaking another boat. Passing boat must establish a reasonable, safe interval or overlap before gaining the right to choose lane of travel. This rule shall hold true on turns as well as straightaways.
5. Competing boats shall maintain a safe distance of at least ten (10) feet separation. Any boat that fails to maintain the ten (10) foot separation is said to encroach on the other boat's lane, and may be subject to fines and/or other penalties.
   (a) A safe interval or “overlap” is seven (7) boat lengths which is considered one roostertail.
6. When two boats are converging, the boat to starboard shall maintain 10 feet of clearance on a course parallel to that of the inside boat until the boat to starboard has

established the necessary Overlap

7. The boat being passed may choose the buoy line. However, the boat being passed is obligated to hold a fair course.
8. On the straightaway, the passing boat must have established overlap before altering its course to the buoy line. At that time, the boat being passed loses all rights until it re-establishes an overlap and shall, if necessary, slacken speed to avoid risks of collision.
9. Should the passing or overtaking boat not have established the proper Overlap before reaching the entrance buoy to a turn, an overlap shall not exist.
   (a) When a safe interval or an overlap does not exist in a turn, the leading boat shall be required to maintain the same approximate lane throughout the entire turn.
   (b) The leading boat shall exit the turn and maintain the same lane in the straight as the boat entered the turn.
10. As in Section 8, the overtaking or starboard boat must also establish right of way over all boats in lanes between itself and the course line.
11. A boat that loses power, drops off plane, is no longer making continuous forward progress or is coasting to a stop before reaching the commitment buoy shall lose all right of way.
12. Lapping
    (a) Whenever a boat is about to be lapped, all of the overlap and bearing away rules shall be in effect. Neither the overtaking nor the overtaken boat have any specific rights superior to the normal rules.
    (b) Race officials shall have the authority to order any contestant, who in the opinion of the officials, is difficult or dangerous to pass to assume a line around the race course that is the least advantageous so that faster boats may pass.

K. RESTARTS, COMPLETED EVENTS

1. Should a heat or section be stopped, it shall be considered a complete event if at least half the number of laps required to finish that scheduled event have been completed by the lead boat.
   (a) For the purpose of this rule, 2 laps of a 3 or 4 lap heat and 3 laps of a 5 or 6 lap heat shall be considered half the number of laps.
   (b) The position of all boats running at the completion of the lap previous to the stoppage shall be used to determine the order of finish. The boat that caused the stoppage shall not be scored.
   (c) The Chief Referee shall award points to those boats based on the running order at the completion of the last lap previous to the stoppage.
2. If over half the heat, either qualifying or Final, is completed, the boat must be running at the finish flag (red or checkered) to be declared the winner of the heat or event.
   (a) Running shall be defined as: the boat must be a legitimate competitor at the time the heat was stopped and not in distress, suffering a mechanical issue that prevents maintaining position should the heat not have stopped, or was running in a non-planning attitude at the time of the stoppage.
3. Should a heat or section be stopped, it shall be considered not completed and shall be restarted when less than half the required number of laps in the scheduled event have been completed.
4. Race stoppage of Final Heat and procedures to follow:
   (a) In the event of a race stoppage in the Final Heat prior to completion of the third lap or one half of the scheduled laps, and a restart of the final heat is not possible, final order of finish is determined by total cumulative points, including Time Trials points. In the event of a tie, time trial speed shall be the determining factor.
   (b) The boat that caused the stoppage or was penalized for causing the stoppage shall not be scored in the Final Heat and/or cannot be declared the winner on points.

5. The Chief Referee shall have the authority to declare a heat complete and add one minute to a competitor's elapsed time in lieu of running extra lap(s).
   (a) The intent is to allow the heat to be declared complete even though a boat has not completed the extra lap. Continued running shall not result in a change to finishing position.

L. ELIGIBILITY FOR RESTARTS

1. The boat, or boats, whose actions result in the stoppage of a heat, shall be awarded zero points.
2. The boat or boats responsible for the stoppage of a heat shall not be eligible for a restart of that heat.
3. Any boat otherwise qualified to enter a re-run of a section or heat may enter the re-run regardless of whether it crossed the starting line in the stopped section or heat.
4. Any boat whose actions result in a disqualification from a heat shall not be eligible to enter any re-runs or subsequent re-runs of the same section or heat.
5. It shall be the practice of H1 to fill the final heats with another boat based on points accumulated during the race in prior heats, even if this boat did not start the original final heat.

M. DRIVER QUALIFICATION

1. A driver who participated in an Unlimited event during either of the previous two racing seasons must, prior to starting an event during the current season:
   (a) Obtain a FAA Class 1 or Class 2, DOT, supplied physical certificate dated during the current season.
   (b) Participation shall be defined as: listed as driver of record on the entry blank for the event, answer roll call at the drivers meeting, and compete in a complete heat at the event.
   (c) Pass a written and oral examination on the rules, conducted by the Chief Referee.
2. A previously qualified driver who has not participated in an Unlimited event for longer than two years shall:
   (a) Meet the requirements of Section 1 of this rule.
   (b) Meet the requirements of Section 3 with the exception that no heats of competition in other classes shall be required.
   (c) Participation shall be defined as: listed as driver of record on the entry blank for the event, answer roll call at the drivers meeting, and compete in a complete heat at the event.
3. Any driver who has never been legally qualified to drive in an Unlimited event, or who has not participated in an Unlimited event in the previous two seasons, must, prior to his attempt to qualify to participate in competition, satisfy the following:
   (a) Meet the requirements of Section 1 of this rule.
   (b) Run a minimum of fifteen (15) laps or more based the opinion of the qualification of the driver by the Chief Referee before he may drive in competition Two-thirds (2/3) of the laps must be above 130 MPH and may combine driver's time trial laps and the boat's time trial lap(s). The fifteen (15) laps must be completed during a single racing season.
      (i) Lap times must be certified by the H1 timing equipment or equivalent equipment approved by the H1 Chief Scorer.
      (ii) The driver shall be observed by the Chief Referee or his representative in attendance.
   (c) Start in the Provisional Starter position as defined in Rule 4B/3 (d) through (j) for the first two (2) completed heats of racing.
   (d) Start at a position determined by the Chief Referee for the next two heats.
   (e) Be evaluated by the Chief Referee after each race during his qualification season.

(i) The Chief Referee may designate an alternate starting position and/or racing restrictions at any race if the Chief Referee deems it necessary he may make any driver re-qualify for safety reasons.

(f) The fifteen (15) lap requirement, and any laps completed, may be extended by the Chief Referee into the immediate next season if all fifteen (15) laps or heats are not completed in a single season. These qualifying laps shall not be extended past the immediate following season.

4. A boat and/or driver, having complied successfully with the terms of this rule, shall be deemed qualified for the balance of the current season, except as provided in section regarding safety inspection of boats & driver's equipment, & Sect. 3 above.
5. All drivers must take and complete a certified scuba diving course. Should a certifiable medical condition prevent completion of the open water portion of the course, the driver shall submit documentation to verify those portions of the course that have been completed.
6. All drivers are required to successfully complete a capsule training program. Training programs shall be approved by H1. Successful completion of an approved training program shall fulfill this requirement for a period of twenty-four (24) months.

N. CHANGE OF DRIVERS - ALTERNATE DRIVERS

1. The Chief Referee must be notified of a change of driver during the sanctioned event, including time trials or testing, and the new driver shall sign the entry form for the boat he is to drive.
2. All drivers shall be members of H1.
3. All alternate or substitute drivers must submit their registration to the chief scorer prior to the drivers meeting to be considered an alternate driver.

O. DRIVERS' SIGNALS

1. The following signals shall be used by drivers when their boats come to a stop, or are involved in an accident during a heat or section:
   (a) Clasped hands above head: Need routine assistance. Everything okay.
   (b) No signal: Need immediate emergency assistance. Driver injured.
   (c) Waving both hands continuously above head: driver in danger. Needs immediate assistance. Heat stoppage required to render aid.
   (d) The canopy must be opened within sixty (60) seconds after the boat comes to a halt or the Chief Referee shall stop the race.
   (e) Turning on strobe light: Needs no assistance everything okay. The canopy should be kept closed if possible during the race for safety. If the canopy is opened to signal, it should be closed when boats are in the vicinity.
   (f) Convey driver status over the radio to the corral communicator if possible.

A. PROTESTS AND APPEALS

1. The Chief Referee shall have the sole responsibility for the proper conduct of this event, and shall render all decisions.
2. All decisions of the Referees shall be final regarding violations of starting, driving, and course rules. There shall be no appeals or protest from a decision based on the judgment of the Referees on violations of course rules.
   (a) Appeals shall be allowed only if a suspension is involved.
3. An owner competing at an event or race may protest the *technical* legality *(engine, hull, propeller, etc.)* of another competitor at that event by filing the protest in writing with the Chief Referee no later than one (1) hour after the Final Heat.
   (a) The protest shall be accompanied by a protest fee of *$1000*.
   (b) If the protest is found to be invalid (i.e. the competitor is

determined to be legal), the protest fee shall be divided as follows: 1/2 to the Inspection budget, and 1/2 to the protested competitor.

(c) If the protest is found to be valid (the competitor is determined to be illegal), the protest fee shall be returned to the protesting owner.

4. Contestants shall have the right to appeal adverse decisions by H1 Officials **not** involving starting, driving or course rule infractions, that result in penalties to their teams.
   (a) Appeals must be filed in writing with the Chief Referee no later than one (1) hour after the Final Heat.
   (a) The appeal fee shall be $500.00. If the appeal is not accepted by the Chief Referee, the $500.00 shall be refunded. Once the appeal is accepted, the appeal shall be forwarded to the Appeal committee as outline in the Protest and Appeals Procedure.
   (b) If the appeal is withdrawn, the Contestant shall forfeit the fee.

Protest and Appeals procedure:

Protests and Appeals may be filed by the aggrieved and involved owner or crew chief of H1 teams for decisions rendered in incidents described in Section P, Q, R, and S of the Rules.

A 3-person committee will be assembled on-site consisting of a Drivers Representative and/or Alternate, a member of the Competition Committee, and either the Chief Referee or the Chief Inspector, each of which must be neutral from the decision being protested.

All protests or appeals must be submitted in writing with the appropriate fee. You must specify the rule you are questioning in the rule book along with a detailed description of what you are protesting or appealing. No protests or appeals will be heard if this is not followed. Only what is written will be reviewed by the committee.

The committee will convene immediately and render a decision within 30 minutes of receiving the protest or appeal, such decision to be considered final, delivered on-site, and no later than the following heat or the conclusion of the event.

Each team may file an appeal or protest one-time during the course of an event provided the team meets the following criteria:

1.The team is directly involved and/or aggrieved in the decision or incident that precipitates the appeal.

2.For incidents involving heats, the team must have been involved in the heat.

P. DISCIPLINE

1. Every boat owner, driver or member of a pit crew shall be subject to summary disciplinary action for unbecoming conduct in connection with racing from the date and time of arrival at the race site until 24 hours after a race shall have been completed.
2. Unbecoming conduct is defined as any act or series of acts, omissions, appearance, or series of omissions, whether on or away from the race course or in the pits, committed prior to, during or subsequent to the race within the time period stated in Section 1, which: (1) tends to bring racing, H1, its race teams, race sites and/or their

sponsors in disrepute or to cause embarrassment to any of them; (2) endangers the person or property of others; (3) constitutes dangerous, careless or reckless operation of boats or equipment.

3. The penalty for each violation of unbecoming conduct shall be the running of an extra lap or disqualification and/or a fine not to exceed $1,000 or suspension for not more than one year or any combination thereof. Fines shall be payable to H1 within 5 days of the infraction.
4. The Chief Referee shall have the sole power to determine the violation and to impose the penalty of disqualification from a heat and/or a fine not more than $1,000, and shall notify the offending party in writing of his offense as soon as possible after completion of the heat involved.
5. In the event the Chief Referee recommends further additional action by H1, he shall inform that member of his intent to make such recommendation, within six hours after the completion of the final heat. Upon review of the Chief Referee report, and statements of that member, or other members, H1 shall make a determination of what, if any further penalty shall be imposed, and this determination shall, likewise, be final. Any fines levied must be paid within 5 days of the infraction.
6. If a driver enters the water, or signals by waving both hands continuously above head to stop the heat in lieu of jumping in the water, it must be determined by the referee that a life threatening situation existed under the circumstances at the time. If it is determined that a life threatening situation did not exist, the driver may be disqualified for the remainder of the day. Further disciplinary action may be taken by H1
7. In addition to any penalty provided for in the H1 Rules and Regulations, the Chief Referee shall have the authority to exclude, suspend, disqualify, fine or otherwise penalize at his discretion, any member or participant or any officer, Directors, partner, agent or employee thereof determined by him to be guilty of any of the following conduct:
   (a) Any statements and/or conduct tending to distract from the integrity, reputation or to discredit APBA, H1 and its sponsors or the sport of boat racing.
   (b) Improper language or conduct toward any official.
   (c) Commission of any assault or any assault and battery upon any official or anyone assisting an official.
8. Any member of H1 that causes another person to be thrown into the water shall be subject to fines and/or penalties by the Chief Referee.
9. Yellow cards may be given to drivers for dangerous or unsafe driving.
   (a) A driver who receives two yellow cards in a single racing season, shall be suspended from further competition for the next two events immediately following the issuance of the second card.
   (b) A minimum of a $500.00 fine shall be included with each yellow card.
   (c) The authority to give yellow cards lies with Chief Referee, who shall consider any and all information available before rendering a final decision.
   (d) The Chief Referee shall consider requests for yellow cards from:
      (i) Any H1 officer, official, or designated turn judge.
      (ii) A protest from any registered participant.
   (e) Each suspension reduces the number of yellow cards by one held by the driver.
   (f) Appeals for suspension due to issuance of yellow cards may be directed to the Chairman of H1.

10. The unauthorized and unsportsmanlike “inspection” of another competitor’s equipment by any team or crew member prohibited. Inspection shall be defined as, but not limited to, removing covers, using tools and/or measuring devices, going aboard any team equipment without permission,
   (a) If it has been established that such an activity has occurred, the owner shall be subject to a $1000.00 fine and placed on probation of 12 months.
11. In addition to any penalty provided for in the H1 Bylaws and Rule Book, the H1

Chairman shall have the authority to exclude, suspend, disqualify, fine, up to a maximum of $5,000 or otherwise penalize at his discretion, after notice and hearing by a committee appointed by the Chairman, any member or participant or any officer, director, partner, agent or employee thereof determined by him to be guilty of any of the following conduct:

(a) Any statements and/or conduct tending to distract from the integrity, reputation or to discredit H1 Unlimited, including its Board of Directors and Chairman or the sport of boat racing.
(b) Improper language or conduct toward an official.
(c) Commission of any assault or any assault and battery upon any official or anyone assisting an official.

12. Any such ruling or decision made by the Chairman shall be final, conclusive and non-appealable. Any party involved in or affected by any such decision agrees to release and waive any and all claims that such party may now or hereafter have or possess arising out of or connected with such a decision against H1, its officers, directors, employees and members, whether for damages or for any other remedy or relief.

Q. PENALTY & FINE SCHEDULE

1. Prior to the first race of each season, the Chief Referee shall publish and distribute a penalty and fine schedule to all owners and drivers. See APPENDIX D. (Additional copies may be obtained from the H1 office.)
2. The schedule shall be used where the Unlimited Rules and Regulations does not specify a penalty for an infraction, or to supplement the Rules and Regulations penalty.
3. The schedule shall be progressive; i.e. multiple occurrences of the same identical infraction shall result in a penalty that progresses at least one level higher than the previous occurrence**.**
   (a) A driver may move back one level on the schedule by completing two (2) full races without the same infraction.
   (b) Drivers who reach the maximum level may be subject to, but not limited to, a suspension.
4. The driver and owner shall be notified in writing of any penalties and/or change of status regarding the schedule.
5. This schedule shall in no way limit the Chief Referees power to levy the maximum fine/penalty permitted by the Rule Book when the situation warrants.

R. VIDEO REPLAY AND REVIEW

1. Any video/photos that are recorded (owned) by H1 and/or its authorized production company are for the official's use and are to be viewed only by H1 officials.
   (a) ***No one has a "right" to see the videos used in decision making.***
2. Officials shall use all tools at their disposal to make decisions, including but not limited to onboard video from H1 cameras, helicopter video, remote unmanned vehicle video, and production company videos.
3. Any H1 owned video may be shown only at the discretion of the Chief Referee.

S. ALL BOATS ARE SUBJECT TO ALL RULES ANYTIME ON THE WATER.

T. OFFICIAL RESULTS AND ORDER OF FINISH

1. All decisions as to driving infractions shall be announced and imposed, and the results made official, before the start of the next heat; i.e. decisions for 1A and 1B shall be announced and made official before the start of Heat 2A, etc.
2. All decisions as to driving infractions in the Final Heat shall be announced within 30 minutes after the finish of the Final Heat.
3. The Official winner and Final Order of Finish shall be subject to the result of all

technical inspections and review of data recorder.

RULE 5 • RECORDS AND POINTS

A. COMPETITION & TIME TRIAL RECORDS

1. Official H1 records shall be awarded for the fastest speeds to date in single laps of competition, heat average of competition, single laps of time trial, and two laps of APBA Gold Cup time trial.
2. In order to establish a competitive record, there must be at least three legal starters in the heat or section for which the record is claimed, all of which must conform to the Unlimited Class Rule.
3. Competition and time trial records shall be awarded only for laps completed on approved 1-2/3, 2, and 2-1/2 mile courses or courses specifically approved by H1
4. In order to establish an H1, APBA, UIM, or local course record, all buoys must be in place and the course shall be certified by the Race Surveyor.

B. STRAIGHTAWAY RECORD RUNS

1. Sanction applications for Straightaway Record Runs must be filed with H1 at least 60 days prior to the date of the trials.
   (a) The H1 office must be notified at least 60 days prior to the date of the trials. Upon notification to H1, a notice shall be sent to all H1 registered owners within 14 days. Any owner planning to make a record attempt must notify H1 at least 30 days prior to the date of the trials
   (b) Single-boat record attempts are allowed through H1.
2. All Unlimited Class minimum insurance requirements must be in effect for the period covered by the Straightaway Record Runs.
3. Any duly registered Unlimited Hydroplane may compete in Unlimited Straightaway Record Runs regardless of whether or not such boat has ever competed in a competitive Unlimited Class race. However the hull must be subject to H1 inspection and rules.
4. Any hull competing for Unlimited Straightaway Record Runs shall conform to and be subject to inspection for compliance to current Unlimited Hydroplane rules, including, but not limited to hull, engines, engine rules, and replacement engine parts.
   (a) Inspection shall be completed and report issued immediately following pending record run.
   (b) There shall be no restrictions on fuel amount and engine RPM during the run.

C. RACE REPORTS

1. Lap speeds, points and other statistical data shall be made available, as it is prepared, to owner, driver, officials and press on a timely basis.
   (a) Each race Promoter shall furnish suitable copier and paper.
2. The Chief Scorer for each race shall provide a copy of the summary sheet for the race to the Unlimited Official Historian along with time trials lap speeds and averages.

D. METHOD OF SCORING POINTS

1. Each boat shall be awarded points in each heat or section based on order of finish, on the following basis: 1st Place - 400 Points; 2nd Place - 300 Points; 3rd Place - 225 Points; 4th Place - 169 Points; 5th Place - 127 Points; 6th Place - 95 Points; 7th Place - 71 Points.
2. The system of scoring points, as outlined above, shall be used in all heats. Points scored in all heats shall be cumulative.
3. The winner of the contest shall be established by the order of finish of the final heat.

The order of finish for boats starting but not completing the final heat shall be determined by the number of laps each boat has completed in the final heat.

E. HIGH POINTS

1. High Points shall be awarded at all sanctioned regattas where a minimum field of three boats crosses the starting line in heat one.
2. The total points scored by each boat in each sanctioned event shall be credited toward the National Boat Championship.
3. Total points scored by a driver in any one boat during a sanctioned event shall be credited toward the National Driver Championship.
   (a) Drivers may score points in only one boat during any one sanctioned event.
   (b) A driver shall declare In which boat he shall be scored driver high points thirty (30) minutes prior to the scheduled initial start of the Final Heat. The declaration shall be in writing on a form provided by H1 and given to the Chief Scorer prior to the designated time.
   (c) Driver points shall be scored on the same basis as points for boats.
4. That boat which accumulates the highest number of points at the end of a complete racing season shall be declared National Champion Boat and awarded the right to bear the US-1 shield. The owner of that boat may request the Number (1) boat registration for the following year and may paint the US shield on the hull of his boat for that year.
5. The driver accumulating the highest number of points at the end of the racing season shall be declared National Champion Driver and shall be presented with a suitable award.
6. Should a boat be destroyed, or should a boat be declared unseaworthy by the Chief referee or his representative, then the boat's replacement, if it carries the same racing number and name, shall have its predecessor's points transferred to its credit.

RULE 6 • SANCTION, PRIZE MONEY, TROPHIES, INSURANCE

A. SANCTION AND PRIZE MONEY

1. Sanction Conditions:
   a) Only the race specifically designated by the APBA as the "APBA Gold Cup Race" may use the words "Gold Cup" in its designation.

   Races desiring sanction must submit a written proposal and $5,000 deposit by September 1 of the year previous to the desire race date. The deposit shall be refundable only if SITE gives the H1 written notice on or before January 15 of the immediately preceding year of its intention not to host the next year’s event.

   b) Sanction applications, executed on the form provided by the H1 for that purpose, shall be completed and filed by March 15th of the year. Variances from this schedule must have prior written approval of H1
      (i) A suitable course map, survey or chart, in triplicate shall accompany each sanction application.
      (ii) The sanction application shall be accompanied by an H1 provided checklist of requirements, situations and guidelines that shall be completed in full before approval of the sanction.
   c) The package fee and payment schedule shall be determined at the annual meeting of the Board of Directors. The fee is payable in US dollars.
      (i) 50 percent of the total is payment, which may be scheduled over time, is a minimum of 30 days prior to the event.
      (ii) The 50-percent balance is due immediately following the final heat of

racing.

d) Each race promoter must meet the insurance requirements.
e) Should a race sanction be disapproved or canceled, all moneys paid by applicant shall be returned together with a written explanation.
f) All races shall pay prize money balances within one hour of the conclusion of the event, unless prior contractual agreement is made 60 days before the race.

2. In the event that an Unlimited race promoter desires to stage an Unlimited race with special rules in its deed of gift for a particular trophy, or sanction application that differs from those specified wherein, these conditions must be approved by H1.
3. H1 retains all national radio and television rights to all events.
4. Race site/producer retains all local and regional radio and television rights.
5. Each race site shall establish the day after the scheduled race day as a contingency, or rain date. This date shall be used in the event of cancellation, postponement, or extension of the scheduled race day for any reason.
6. The Promoter shall provide take home trophies for the first three (3) place finishers in an event.

B. REVOCATION OF SANCTION

1. The Chief Referee shall have the authority to revoke a sanction for any Unlimited race prior to the start of Heat One if the actual race conditions do not substantially conform to the conditions as advertised on the H1 race announcement or as defined and required in the H1 Rules and Regulations.

C. PRIZE MONEY

1. The Total Prize Packages shall be determined annually by the H1 Board of Directors.
2. National Boats prize money is 75% of the Total Prize Package. The money is divided equally among the national boats participating in an event, minus the prize money paid to non-national boats.
   (a) A National boat is a boat that makes a commitment to race, and participates in all sanctioned race events.
   (b). Non-National boats per race prize money schedule: TBD
3. All prize money is in U.S. Dollars (USD)

D. INSURANCE REQUIREMENTS

1. All races sanctioned for Unlimited boats shall carry H1 or APBA regatta liability insurance in minimum amounts of $5,000,000 including participant to participant coverage combined single accident limits, the form of such coverage to be approved by H1 in accordance with existing H1 and APBA insurance standards.
2. All promoters of Unlimited races shall provide a minimum of $5,000,000 H1 or APBA regatta liability insurance for each day of time trials, and testing as well as for each day of competitive racing.
3. All promoters of Unlimited races shall provide the H1 or APBA required Member Accident and AD&D insurance coverage.
4. SITE shall furnish all insurance policies and certificates, including from all contractors and subcontractors as shall be satisfactory to H1, designating as applicable, H1, APBA, all series sponsors, SITE and SITE's sponsors (including their officers, employees, and agents) as additional insured.

E. SPECIAL EVENTS/EXHIBITIONS

1. Unlimited Hydroplanes may participate in a special event or exhibition, provided the following conditions are met:
   a) H1 has the authority to approve or disapprove the special event or exhibition.
   b) Promoters are prohibited from using any terms in their promotion that would indicate race, contest or any form of competition between Unlimited

Hydroplanes.

c) Proof of insurance must be provided to H1
d) No more than one boat may be on the water at one time.
e) Promoters not charging spectator admission:
f) Must receive approval from H1
g) Promoters charging spectator admission:
h) Must receive approval from H1
i) Must be sanctioned by H1 and provide H1 or APBA insurance for the event.

F. OTHER SPECIAL EVENTS

1. Anyone who desires to compete in a Special Event where more than one boat shall be competing is required to receive prior approval from H1.

RULE 7 • HULL OWNERSHIP, FEES, NUMBERS

A. BOAT OWNERSHIP

1. An Unlimited hydroplane may be owned by either an individual, partnership or a corporation, provided that such individual, partnership or corporation shall be a member of the H1
2. In the event, however, that an Unlimited hydroplane is owned by a partnership or corporation, the partnership or corporation must designate an individual who is a member of H1 This designated corporate representative cannot at any time appoint an alternate representative in his absence.
3. The individual designated as such representative shall exercise the usual power of ownership as the representative of such partnership or corporation.
4. H1 shall have the power to reject any name that is objectionable, contrary to the best interests of the sport, or in conflict with a name already registered.
5. Boats registered in the Unlimited class shall participate only in competition, programs and events approved or sanctioned by H1

B. REGISTRATION FEES

1. The annual registration fee for H1 shall be $2,500.
2. The annual registration fee for H1 backup hull shall be $1,500.
3. The per race registration fee for H1 is a onetime fee of $2,500.
4. Annual registration made less than 15 days before an event must be paid in cash, certified check or money order. A boat may not compete in an H1 event until the receipt of the registration fee is received and verified by the H1, or pending an agreement between the H1 and boat owner.
5. There shall be no time limit placed on when an owner may purchase and/or lease a boat; however, a hull may only be run as one boat, by one owner for time trial purposes or for the purpose of a Chairman's Option. It cannot be bought and sold for the purpose of intent to qualify."
6. An owner shall be allowed one entry per event for each boat number registered with H1. This shall be referred to as the primary hull.
   a) There shall be no limits placed on the replacement hull(s), also known as back-up hull, for the primary hull used at an event except the following:
      (i) The replacement hull shall be qualified.
      (ii) The owner must declare which hull shall be entered into the event one-half hour before the scheduled start of the first heat.
      (iii) The owner must finish the event with the hull declared in ii) above.
      (iv) The replacement hull must carry the numbers of the owner's registered primary hull.
   b) Points earned from (a) above shall be awarded to the original, registered number on

the primary hull.

c) Change of hulls during the event for the purpose of gaining National Points is not allowed.

(i) Once a hull number has made a start in any heat that hull number may not be transferred to another hull for the duration of the event.

C. BOAT NUMBERS

1. Boat numbers are the property of H1. These numbers may be withheld, assigned, withdrawn, reassigned or retired at the sole discretion of H1, as it deems necessary to promote the best interests of the sport.
2. The competition boat numbers are assigned to the Owner of Record.
3. Unlimited hydroplanes shall be designated by the letter "U" together with a number assigned by H1 The following shall be the policy for assigning and transferring competition boat numbers:
   (a) Subject to the provisions of Rule 7C.1 above, an owner may maintain his number from year to year.
4. All competition boat numbers must be one or two digits. However the number may be extended to three (3) digits upon request on the registration form and approved by H1.
5. Numbers must be a minimum of 16 inches in height and shall be of a color that contrasts with the surface upon which it is painted.
6. Number shall be displayed at all times on a horizontal surface.
7. HULL IDENTIFICATION: Teams owning more than one hull shall mark the transom of each hull to identify the hull being used. The identification number or method must be approved by H1.
   (a). Owners shall modify the appearance of hulls to distinguish from other qualified hulls.
8. Subject to the provisions of Rule 7C.1 above, an owner may reserve a boat number for the immediately following season, provided that the owner has registered the hull number previously.
   (a) The cost to reserve a number shall be $1000 annually.

RULE 8 • DRIVER EQUIPMENT, PHYSICALS & CREW APPARREL

A. PHYSICAL EXAMINATION OF DRIVER

1. Following an accident the following procedure must be observed:
   a) Driver must undergo another physical examination and be approved by regatta physician.
2. Drivers shall not consume alcohol in any form during the twelve (12) hour period immediately prior to the start of the first heat. Violation shall make the violator subject to immediate disqualification.
3. Under no circumstances shall controlled substances be tolerated.

B. DRIVERS' EQUIPMENT

1. The following safety equipment shall be worn at all times:
   (a) Fire retardant driving suit or uniform with tight fitting cuffs and ankles, socks, gloves and shoes.
   (b) An open-face helmet.
   (c) Head and neck restraint system (such as HANS type device) shall meet SFI Specification 38.1 and shall be mandatory.
   (d) Permission to use a full-faced helmet with fixed scuba second stage regulator and neoprene seal at the neck level may be granted by H1 only after a pool session in which the requesting driver demonstrates to an H1 official proper helmet fit and adequate water tight integrity.
   (e) Full-faced helmets are not recommended.

(f) A driver may elect not to wear a life jacket when competing, but instead choose to wear a floatation vest inside his/her racing uniform, or a driver's suit manufactured with floatation as part of the driver's suit.

2. Standards for such equipment shall be established by H1. Equipment that does not meet these standards must be replaced and inspected before the driver in question shall be allowed to compete.

C. SPONSOR DECALS AND PATCHES AND H1 ADVERTISING POLICY

1. Registered contestants have the right to advertise and promote their sponsor's products and services by means of lettering and graphics on boats, tow vehicles and driver's and crew uniforms. Reasonably sized sponsor's posters, banners and signs may be displayed within the contestant's pit area. No team signage shall be permitted on surrounding fence area of the hot pit area.
2. All other areas associated with the racing event, including the host hotel, are under the control of H1.
   (a) Race teams may not enter into any agreements to sell, promote or advertise any product or service in these areas, with the exception of the privileges granted above, without the express written consent of H1
3. Advertising, pictures and/or lettering on boats, tow vehicles, uniforms, banners, posters and signs that is of questionable taste, or offensive in nature, is specifically prohibited.
4. It is mandatory that H1 series sponsor boat decals and uniform patches be displayed at all times while participating at any event in the locations indicated on diagrams furnished by H1.
   (a) H1 series sponsor's patches and decals shall be prominent in size and all uniforms for both crew members and drivers must pass inspection prior to racing.
   (b) Patches shall be provided by Sponsors or H1.
5. Driver's uniform and/or Driver's suit shall have the same sponsor patches as required for the team uniforms.

D. ALL CREW AND DRIVER UNIFORMS

1. Mandatory Friday, Saturday and Sunday.
   (a) H1 Title and High Point Sponsors patch must appear on uniforms.

E. BOAT GRAPHICS

1. H1 required graphics must appear on vertical surfaces as required.

RULE 9 OFFICIALS & DUTIES

A. ALCOHOL CONSUMPTION

1. All officials defined in this rule shall not consume alcohol during the twelve (12) hour period immediately prior to the start of the first heat.
2. Under no circumstances shall controlled substances be tolerated.
3. Violation shall make the violator subject to immediate removal of all assigned duties for the race.

B. CHIEF REFEREE

1. The Chief Referee shall be appointed by the Chairman of the Board of the H1 with the consent/approval of the H1 Board of Directors.
2. The Chairman of the H1 shall be responsible for monitoring the performance of the Chief Referee and reporting to the Board of Directors.
3. The Chief Referee within 15 days of the completion of the event, shall forward to H1 a complete, written report on the regatta. This report shall also be available to the Board

upon request.
   a) This report shall contain information regarding race course and facilities, conduct of race, officials and participants, inspection of boats, medical exams of drivers if dictated by circumstances, compliance with rules, disciplinary actions, fines and penalties, comments and suggestions to improve the sport.
4. Duties of the Chief Referee
   a) Sole authority for Conduct of the sanctioned event.
   b) Conducts drivers' meeting.
   c) Administers oral examination to drivers.
   d) Shall be in attendance during time trials and testing.
   e) Chief Referee shall work with the Race Director before any changes may be made to the schedule.

C. REFEREES

1. Assignment: Assigned at those races where the Chief Referee so designates. Use of assistants permitted by race committees at other events.
2. Qualifications: Must be approved by the H1 Board and must have at least five years experience, and be qualified current APBA inboard referee.
3. Duties: Acts as general assistant to, and carries out orders of, Chief Referee.

D. DRIVERS' REPRESENTATIVE

1. Shall be elected by the competing drivers, or appointed by the Chief Referee.
2. Qualifications:
   a) The Drivers' Representative shall be, or have been a qualified Unlimited driver not competing in heats at that event, or;
   b) A qualified H1 official, race committee member or individual may serve as drivers' rep with majority approval of competing drivers.
3. Duties:
   a) To act as a liaison between the drivers and officials on all matters regarding rule violations, interpretations, protests and appeals.
   b) To verbally notify owners and drivers as soon as possible of any infraction and/or penalty, followed by a written notice.
4. Location:
   a) The drivers' rep shall remain in the pit area at all times during the event.
   b) The drivers' rep shall accompany any driver who wishes to talk to the Chief Referee, or his representative, on the judge's stand.
   c) It is recommended that the drivers` rep be in the same area as the designated Pit Radio Official.

E. NON-DISCLOSURE AGREEMENT

1. The Chief Referee, Chief Inspector, all Inspectors, and technical staff shall not disclose to any individual or race team any information declared to be proprietary by any race team. This shall apply to information obtained in the performance of duties. This non-disclosure agreement is binding until the termination of said Directors or Inspector's association with H1 A non-disclosure agreement form shall be signed each year by the H1 officials and all Inspectors and kept on file with the H1 office. This non-disclosure policy shall not apply to information regarding anything used to circumvent Unlimited Rules and Regulations.

F. H1 CHAIRMAN

1. The Chairman of the H1 shall be the official representative and spokesperson for the organization in the conduct of all non-racing duties and events.
2. The Chairman of the H1 shall serve as an advisor/consultant to the Chief Referee during an event for any matter not covered by the H1 rules of racing.

3. The Chairman shall be the liaison with the appointed representative(s) from an event for all business purposes an situations/events not covered by the H1 Rules of Racing.

RULE 10 TECHNICAL RULES

Note for 2017 Racing Season: With reference to the addition of the T-53 turbine engine, H1 Unlimited reserves the right to adjust competition requirements during the 2015 Season. Competition requirements shall include, but not limited to, fuel flow, N2 and weight.

A. INSPECTION & COMPLIANCE

1. Inspection Sealing
   a) The Chief Referee, Director of Safety and Technical or Chief Inspector (or their designee) may choose at any time to seal or impound any item or number of items, including the boat to prevent tampering and/or for inspection at a later time. Certain items shall be sealed per these rules.
   b) H1 is not responsible for payment, reimbursement, damage or loss to the competitor as a result of such sealing or impounding.
   c) Items sealed by the Chief Referee or Chief Inspector (or designee) shall remain sealed until the seal(s) is /are broken by the Inspector's (or designee).
   d) Unauthorized breakage of seals may result in a minimum $1,000 fine and/or disqualification from the event
2. Compliance
   a) All boats shall comply with all rules at any time during the official sanction period.
   b) The Inspector's do not have the right to waive any rule or allow a boat to run in non-compliance of these rules.
3. Inspection of Boats
   a) The Chief Inspector, Chief Referee, or a designated representative shall have the sole authority to check compliance to all rules at any time.
   b) H1 shall appoint a Chief Inspector who shall work under the supervision of, and be responsible to, the Chief Referee.
   c) H1 shall appoint Hull Inspectors who shall work under the supervision of, and be responsible to, the Chief Referee.
   d) The Hull Inspectors shall conduct a pre-race safety inspection of all boats. They shall appoint as many assistants as needed to complete this work.
   e) A Hull Inspector, or his representatives, shall be in the pits during the race to perform safety checks as may be required.
   f) The Chief Inspector, Chief Referee, or a designated representative shall inspect every skid fin rod on every boat at the conclusion of a time trial run, and every heat, of every race.
   g) At the Chief Inspector’s, Chief Referee’s option, any boat competing in the final heat may be impounded.
4. At the conclusion of the Final Heat, the 1st and 2nd place boats shall be impounded for the purpose of inspection. At the option of the Chief Inspector or Chief Referee, any boat starting the final may also be impounded.
   a) The impound period shall not exceed four (4) hours after the official results are posted, unless advised by the Chief Referee.
   b) During this period, nothing shall be done to the boat without specific permission and direction of the Inspectors, with the exception of removing the drain plugs.
   c) The engine cowling shall not be removed and no team personnel shall access

the cockpit.
   d) The propeller shall only be allowed to be covered.
5. Following an accident or repair of damage, the following procedure shall be observed:
   a) The damaged boat shall be inspected and weighed by the Chief Inspector or his representative before re-entering competition.
6. The Chief Inspector, Chief Referee shall have the authority to disqualify a boat from competition if he feels the boat is unsafe or not seaworthy
7. All registered hulls shall undergo an Annual Inspection (Annual) conducted by the Chief Referee, hull inspectors or designee.
   a) The Annual shall be completed before the hull is allowed to compete.
   b) Part of the annual inspection form is a generic diagram of an unlimited hull.
      (i) The crew chief shall, at the time of inspection, outline on this diagram all internal tanks, annotating them as to contents (e.g. fuel, oil, water). Should any tanks be found that are not found on the diagram at any time after the annual inspection form is completed, a minimum of $5,000.00 shall be levied.
      (ii) Further, it shall be his responsibility to advise the Chief Inspector l if internal hull changes are made during the season.
      (iii) The crew chief shall mark such changes on the diagram; he shall keep a current copy on hand, and submit a copy to the Chief Inspector.
   c) The annual inspection shall be completed by May 31 of each season unless other arrangements are made with the Chief inspector.
      (i) The fee for Annual inspections completed after May 31, or at the race site shall be $100.00.

B. CONSTRUCTION & REPAIR

1. Permission To Build
   a) All new hulls must have received an approved "permission to build" form, and must be built and maintained in accordance with the specifications and minimum standards which have been established by the H1 before being registered.
   b) Copies of "permission to build" and standards for construction shall be made available by the H1 office on request by the builder, owner, or designer of the boat in question.
   c) Failure to obtain proper permission to build and construction inspection shall subject new hulls to a $1,000 inspection fee.
   d) The form is valid for 12 months from date of issuance.
   e) The builder shall file a completed permission-to-build form outlining his intentions.
   f) The builder shall identify any changes from current construction techniques so the responsible authorities may study them.
   g) The permission to build form shall be revised as needed, and shall specify the need for initial inspection prior to deck installation, followed by a second at completion.
2. Inspection Request
   a) All hulls undergoing major modification, reconstruction, or repair must file an Inspection Request form. Failure to file an inspection request form and undergo subsequent inspections may result in a $1000 inspection fee.
   b) Any damage incurred and repaired at a race site shall be inspected by an on-site inspector and shall not necessitate the filing of this form.
   c) A "Request to Inspect" form shall be created to cover the need for inspections prior, during, and post repair of damage.

C. RADIO POLICY

1. Beginning at the five to the five point in the countdown and continuing until all boats are returned to the trailer, only authorized H1 Officials and Staff shall transmit on the H1 frequencies during heat racing.
   a) Authorized H1 Officials and Staff are those race officials and other key personnel who have been issued an H1 radio.
2. Anyone who talks on the H1 frequencies during this time may receive a $500 fine.
3. Anyone making derogatory, inflammatory or unprofessional remarks or comments, or interferes with H1 transmissions or reception at any time during the sanction period shall be subject to a minimum $500 fine.
4. This rule shall not apply to transmissions or questions directed toward an individual or boat team by an H1 official.
   a) Emergencies or reports of dangerous situations shall be exempt.
5. Each boat shall be equipped with a working, FCC-licensed two-way radio capable of a minimum of shore to driver transmission and reception.
   a) The license shall be reviewed at each annual inspection and the licensed frequencies noted on the annual inspection form.
   b) The Chief Referee or his designee shall test at random the operation of each boat radio some time during the sanction period
   c) Failure to have a working radio at any time during the sanction period may result in a $50.00 non-progressive fine for each occurrence.
6. The Chief Referee shall designate one official with H1 communications as the Pit Radio Official (PRO).
7. A designated area, the “Corral” shall be identified and secured near the pit area, preferably with a view of the race course
   a) Only one representative from each team shall be allowed into this area, and he shall have a working two-way radio to communicate directly with the driver.
   b) All official information (legality of starts, infractions, disqualification, etc.) shall come from the PRO, or the Chief Referee.
   c) Except for direct verbal communication by the Chief Referee the PRO shall be the only official source of information during the heat.
   d) A radio representative from each team shall be present in the designated “corral” any time two or more boats are testing at the same time.

D. TECHNICAL VIOLATIONS AND PENALTIES

1. Violations or non-compliance of technical rules, shall be grouped into three (3) classes:
   a) Class I - Technical violations or non-compliance that are intentional and increase the horsepower or performance of the equipment;
   b) Class II - Technical violations or non-compliance which affects the durability or reliability of the equipment, but do not increase the horsepower or performance of the equipment;
   c) Class III - Accidental or unintentional technical violations or non-compliance which do not increase the horsepower or performance of the equipment.
2. The Chief Referee shall have the sole authority to determine the class of any violation.
   a) The Chief Referee shall consult and receive recommendations from the Chief Inspector, or a designated representative.
3. The penalties for the first violation or non-compliance of the technical rules shall be:
   a) Class I - Disqualification of the entry from the event, loss of position, points and money earned for the event, a $10,000 fine and shall start as the Trailer Boat per Rule 4B/3 for the next two (2) events (this penalty shall carry over to the subsequent season).

b) Class II - A $500 fine and a warning to correct the violation or non-compliance before the next event entered.
c) Class III - A $250 fine and/or a warning to correct the violation or non-compliance before the next heat entered.

4. Subsequent violations or non-compliance, in the same racing year, may result in the following:
   a) Class 1- Disqualification from the event and a one (1) race suspension, plus a $10,000 fine.
   b) Class II - Elevation to a Class I penalty.
   c) Class lll- Elevation to a Class II penalty.
5. Multiple infractions at one race shall constitute only a single infraction, and shall carry the penalty of the most severe infraction of the event.
6. All equipment owned by a suspended owner shall not be eligible for registration by another person or entry until such times as the suspension period has expired.

E. DATA RECORDING

1. All boats shall compete with an H1 furnished data recording device (data logger) to monitor and record fuel flow, N2 or engine output shaft speed, and any other parameter H1 deems necessary to monitor.
   a. The maximum length of the flow meter and N2 sensor cable harness shall be 12 feet.
2. If it is determined that the data logger, transducers and cables are in working order, and if no data is recorded during time trials and/or competition, the following penalties shall be imposed:
   a) First occurrence in a season Class II penalty plus loss of points and/or time trial speed.
   b) Subsequent occurrences in the same racing season Class I penalty.
3. The owners and crew chiefs shall designate one representative to be the data contact person for all owners and crew at each event.
   a. This designee shall be announced at the pre-water activity drivers meeting.
4. There shall be no data released until the Chief Referee and the Chief Engineer have viewed and made decisions based on the data.
5. The data technician shall download the data onto a disk which shall be readily available for the data representative(s) after all events have been completed each day, and all decisions based on that data have been rendered.
   a. There shall be a designated section inside the technical truck where the data representatives may collect information.
6. Any attempt to nullify, modify or render inoperative, parts or the whole of the data logger equipment is Class 1 violation.
7. H1 shall issue one set of cables, sensors, and data logger to each boat per year.
   a. Any additional cables, sensors or data logger required due to abuse or damage shall be furnished at the prevailing market price.
   b. The replacement cost for the 12-foot N2 sensor and cable is $300.
   c. The replacement cost for the Data Logger Fuel Harness is $300.

F. GENERAL SAFETY

1. Any driver who enters the racecourse and/or continues to race without any safety equipment, system, or structure properly installed, attached, or operating shall be black flagged and disqualified from the heat.
2. Should his boat break down on the racecourse during competition, it is strongly recommended that the driver remain in the cockpit with seat belts secured and the canopy closed and locked until the completion of the heat.
   a) A driver may momentarily open the canopy, but must turn on the strobe to signal okay.

3. A driver involved in an accident shall be examined and approved by the regatta physician before entering further competition.
4. No turbine engine shall be started at any time without an approved containment ring properly installed.
5. No person shall ride on a boat while it is being launched or recovered, or in transit from trailer to water or water to trailer.
    a) Standing on boat while draining water, or emergency situations shall be exempt from this rule.
6. The propeller shaft shall be disconnected before firing a boat's engine while the boat is on the trailer. Failure to comply may result in a fine of no less than $500.00.
7. All compressed air bottles used in the pit area, regardless of purpose, and compressors used to refill said bottles shall be subject to the following rules:
    a) All compressed-air bottles shall be visually inspected on an annual basis.
    b) A current "VIP" sticker and current DOT hydro date shall be displayed on every bottle at all times.
    c) During refilling at the race site, compressors shall be located away from areas where people congregate.
    d) During refilling at the race site, compressors shall never be left running unattended. The compressor air intake shall draw clean untainted air.
8. Crewmembers performing the refueling operation are recommended to wear a fire resistant, long sleeved uniform consisting of at least two (2) layers of an approved fire resistant fabric, and fire resistant gloves and face mask and conform to all local regulations.
9. The Director of Rescue shall be responsible for, and in charge of all rescue and recovery operations resulting from a race stoppage or emergency response to an incident involving competitors.
    a) Should the Rescue Team respond to an incident/accident, the Rescue Team shall be in complete charge of all activities, under the direction of the H1 Director of Rescue.
    b) This responsibility shall begin upon boarding the hull(s) by the Director of Rescue (or his appointed representatives), and shall end when the hull is on the trailer, or the Director of Rescue, or his representatives transfer responsibility to the Crew Chief, whichever occurs first.
10. Foot pedals shall not have toe straps nor shall they totally enclose any part of the driver's foot.
11. Hand rails and railings shall be mandatory for all steps, platforms, or elevated walking or step surfaces on the trailer. The intent of this rule is to prevent falls from unprotected surfaces. The railings shall be designed with a shape and strength to prevent falls when transitioning from stairs to hull or hull to stairs.

G. TELEMETRY

1. One-way telemetry shall be allowed from boat to shore at any time.
2. No form of radio control devices or actuators may be used at any time.

H. ON-BOARD VIDEO CAMERAS

1. All hulls shall be required to carry a minimum of two on-board video cameras, or equivalent housing, installed by H1 Unlimited or its designated television producer for all heats of racing.
    a) The video from these cameras may be reviewed by officials for the purpose of determining violations or in the event of a protest.
    b) The primary use of the video from these cameras shall be for marketing, promotion and televising the sport.
    c) Camera locations shall be limited to the following locations: Rear Wing; Engine

Cowl (front or rear); Cockpit (inside).

d) Hulls not equipped with an actual camera shall carry an equivalent housing.
    (i) This is intended to have the same aerodynamic profile on all boats.

2. All footage from the on-board video cameras is the property of H1 Unlimited and all rights are retained by H1.
3. Any tampering with, attempting to remove or operate, or failing to return to H1 any on-board H1 boat mounted cameras shall result in a minimum $500 penalty.

RULE 11 - HULL

A. DESIGN CONSTRAINTS

1. Any unlimited-class hydroplane shall be designed to function as a planning hull; i.e. a hull supported by a combination of hydrodynamic and aerodynamic forces generated at and above the surface of the water by the boat's forward motion.
    (a). The intent of this general specification is to eliminate hydrofoil or displacement-type hulls. Any number of planning surfaces is permitted.
2. H1 reserves the right to approve or disapprove any design not meeting this criterion.

B. POWERPLANT

1. A single gas-turbine engine of approved type, a single aircraft piston engine not exceeding 2,250 cubic inches, or any number of automotive or marine-type reciprocating engines may be used.
    a) Further details appear in Rule 12/M.
2. Requests for use of power plants not specifically referenced in the current Rulebook shall be submitted to the Competition Committee for evaluation and approval based on sustainability, reliability and performance criteria.

C. HULL DIMENSIONS

1. The hull must have a minimum length of 28'-0" and a maximum length of 32'-0", measured from bow or tip of sponson (whichever is farther forward) by line of sight to the transom or rear face of the aft propeller strut (whichever is farther rearward).
    a) Appendages or protrusions are ignored if they are not integral parts of hull structure.
    b) Any hull built new or substantially modified after 1992 must have a width of at least 12'-0" and not more than 14'-6".
    c) The distance from the aft most portion of the forward planing surface to the transom or rear face of the aft propeller strut must be a minimum of 16'-0" and a maximum of 20'-0".
        (i) In this context, the forward planing surface is defined as that planing surface nearest the bow, which remains in contact with the water and provides lift to the hull when the boat is in a normal planing attitude at racing speeds.

D. PROPELLER AND POWER TRAIN

1. Propulsion must be by a single underwater or surface-piercing, fixed-pitch propeller.
    a) Water jet, impeller-type propulsion systems, or variable-pitch propellers are not allowed.
    b) Devices that extract thrust from engine exhaust or convert engine power to thrust other than through the propeller are not allowed.
    c) The intent of this specification is to prohibit anything other than a conventional underwater or surface-piercing propeller.
2. The propeller must have no more than three blades and a maximum diameter of 16

inches.

3. The minimum weight for propellers used for testing, time trials and racing shall be established and a Competition Directive issued by the Chief Inspector prior to the start of each racing season.
4. Turbine-powered Unlimiteds must transmit power to the propeller via a single-speed gearbox between the engine output shaft and the propeller shaft.
   a) The intent of this specification is to prohibit variable-speed gearboxes in turbine-powered boats.
   b) The gearbox input shaft to output shaft ratio shall be no less than 1 to 0.47.
   c) H1 reserves the right to change or modify this rule at any time.
5. Piston-powered boats may use multiple-speed gearboxes.

E. STEERING AND CONTROL

1. Directional control devices are restricted to submerged blade-type rudder and skid fin combinations.
2. Power-assisted steering systems are allowed.
   (a) The design and construction of any power assisted steering systems shall be approved in writing by H1 prior to installation and use.
3. The intent of this rule is to make illegal a skid fin that is cambered or shaped on the inside (starboard) surface to enhance performance.
   (a) Each skid fin shall be subject to the inspection below before first use during the season, and shall be subject to random inspection at the discretion of the Chief Inspector or designee at any time.
   (b) Skid fin must be of a fixed, flat, not concaved or stepped on the entire starboard surface. The taper necessary on the leading edge and bottom edge is permissible.
   (c) The area of the skid fin that shall be measured shall be the inside (starboard) surface of the skid fin from the bottom of the skid fin bracket to the bottom of the skid fin.
      (i) Project a line from the front of the skid fin along the bottom of the skid fin bracket that is attached to the aft portion of the port sponson to the back of the skid fin.
      (ii) Take this line and translate it to the surface of the inside (starboard) of the skid fin perpendicular to the surface of the skid fin
      (iii) All area below this line in the inside (starboard side) of the skid fin is the area to be measured for concavity.
   (d) The skid fin shall be checked for concavity while off the hull and lying in a horizontal position.
   (e) The skid fin shall then be checked for concavity while mounted to the hull.
   (f) The skid fin shall comply with the rule both off and on the hull.
   (g) Under no circumstances shall the adjustment rods or shims be used to achieve compliance to this rule.
   (h) Use a suitable straight edge to measure both horizontally and vertically for concavity
      (i) Any concavity in excess of 0.020 inches shall be illegal.
   (i) The fin must be non-steerable, non-retractable, and meet dimensional and construction criteria elsewhere in this manual.
   (j) Any skid fin found in violation that was used anytime during the event shall be impounded for the duration of the racing season and shall be permanently marked for easy identification
   (k) Violation of this rule may be a Class I violation.
4. Propeller shaft must be of a fixed-angle, non-adjustable type. The intent of this specification is to eliminate any use of the propulsion system for steering or variable trim.
5. Movable aerodynamic control surfaces are permitted.

(a) Such surfaces must be hinged to the primary hull structure, not placed on elevated trusses or secondary structure.
(b) They may not extend beyond the length or beam.
(c) Once approved by the Chief Inspector, the driver may manually actuate such surfaces. The intent of this specification is to permit the use of driver-controlled canards, flaps and the like while prohibiting the use of driver-controlled horizontal (tail) stabilizers.
(d) Computer-controlled devices or boosted actuators are not permitted.
(e) Motorized hydraulic assist for the front canard is permissible. System must be operated by the driver's foot and must continue to function in the case of motor failure.

6. Movable devices intended to assist the hull in reaching a planning attitude are permitted.
   (a) Such devices (e.g. spray rails or trays) must be controlled by manual means and may not be used when the hull is on plane.
   (b) Devices shall be marked with colors that contrast to the main hull or cowling, so that officials may readily observe compliance with the rule.
   (c) Movable air-inlet doors (shutters) on the cowling are permitted at any time.
7. Underwater control surfaces other than those expressly designed to provide directional control are not permitted (e.g. hydrofoils that provide lifting forces).
8. Any lose weight found in the boat shall not be considered in determining the total weight of the boat as it was raced.

F. MINIMUM WEIGHT

1. Minimum dry weight for all T-55 turbine powered boats shall be 6,575 pounds.
2. Minimum dry weight for all piston-powered boats shall be 5,775 pounds.
3. Minimum dry weight for all T-53 turbine powered boats shall be 3,800 pounds.
4. Minimum weight shall include the weight of the boat, and motor exactly as raced.
5. In no case shall water be included in the total weight of the boat.
6. Any team found in violation of the weight rule during an event shall be disqualified for the event and shall forfeit all moneys and points for the event.
7. Any team found with the necessary equipment installed in or on the hull that may be used to circumvent the weight rule shall be considered in violation.
8. Boats that do not meet the minimum weight requirement but have not tested, qualified, or competed underweight shall be given the opportunity to meet the minimum weight without suffering a penalty.
9. Ballast used for meeting minimum weights shall be solid, structural or bolted in place and approved by the Chief Inspector or Chief Referee.
   a) Any loose weight found in the boat shall not be considered in determining the total weight of the boat as it was raced.
10. Tanks, pumps, plumbing used for the purpose of carrying liquid ballast shall not be permitted.
11. H1 Unlimited is required to have a calibrated scale for weighing boats at all events.

G. CONSTRUCTION PRACTICES

1. While design concepts for unlimited hydroplanes are many and varied, construction practices are subject to established standards. This requirement is, of course, in the interest of. Reliable, well-proven methods are preferred. Innovative approaches may be taken, indeed are encouraged, within certain guidelines.
2. Any builder starting construction of an unlimited shall advise H1 beforehand, to avoid misunderstanding that might later be difficult or costly to correct H1 provides upon request a permission-to-build form.
3. Anyone beginning major hull modification, reconstruction, or repair shall notify the Chief Inspector, who determines whether, intended changes are significant enough to

warrant inspection.

H. CRITICAL LINKAGE CONNECTIONS

1. Bolts used to connect critical linkages such as steering, throttle, and rudder must have self-locking nuts or cotter pins.
2. Bolts should be installed with the heads up so that they cannot drop out should a nut come off.
3. Bolts shall be high tensile aircraft-type or equivalent.
4. All self-locking nuts must be new, "first use” pieces.
5. Any linkage utilizing clamping force for attachment must also have a positive mechanical positioning device.

I. ENCLOSED COCKPIT

1. All boats are required to have an enclosed cockpit "capsule" before competing or participating in any event sanctioned by the H1. The specifications contained herein are minimum and not considered as ultimate. They are based on the Bud style T-5 cockpit design.
2. Previously raced cockpits that are not Bud style T-5 cockpits may be used, subject to yearly H1 inspection.
3. Clamshell type tilt-up canopies shall not be allowed. A clamshell tilt-up canopy is one where the entire polycarbonate canopy is hinged at the front and has the structural roll cage attached inside the canopy.
4. General Description - The enclosed cockpit system shall be constructed of composite structural shell surrounding a roll cage.
    a) The assembly shall be designed to function as water-deflection bulkheads in all six directions and provide impact protection to the driver's legs, sides, head, and back.
    b) A firewall is mandatory between the driver and the engine compartment.
        a. The firewall shall be sealed to prevent oil, gas, etc., from seeping into the cockpit, and it must serve as a scatter shield.
        b. The firewall shall be part of the structural cockpit assembly.
5. Main Structure: The main composite shell shall be bolted and bonded to the roll cage structure (Appendix B, Figure 1-2) and be designed to act as a water-deflection bulkhead in all six directions.
    a) The aft bulkhead also must serve as an airtight barrier to separate the engine/fuel compartments from the cockpit.
6. Composite Construction Composite cockpit construction lay-up shall use a minimum of 1.0"-thick, 1/8" cell, 5-lb. density Nomex core or equivalent.
    a) Inside skin must be a minimum of 0.040"-thick S-glass or equivalent, outside skin a minimum of 0.060"-thick glass or equivalent. Equivalent materials may include graphite, Kevlar, or other fibrous materials depending on lay-up techniques and schedules.
    b) Vacuum bag construction is recommended. Epoxy resins or prepregs shall be accepted only for laminating.
    c) Minimum acceptable tensile strength for epoxy resins is established at 7,000 psi.
    d) Protection also shall be provided for the driver's back, neck, arms, legs and back of head.
7. Roll Cage Structure - A roll cage structure consisting of a forward and rear hoop and fore and aft bracing shall be used to provide additional support to the cockpit and to the cockpit sides. (See Appendix B, Figs. 1-1 and 1-2 for an example of recommended practice.)
8. Forward Hoop - A braced hoop, strut, composite, or fabricated support structure as high as possible, following the inside contour of the canopy without interfering with the forward visibility of the driver, and the top lid opening shall be securely fastened to or incorporated within the cockpit structure at the instrument panel bulkhead.

a) The hoop shall be adequately braced fore or aft at the sides of the cockpit to secure the whole structure in an upright position and to provide additional strength to the cockpit structural walls and front hinge receiver plate.
b) Strength requirements: The forward hoop must have minimum mechanical impact properties equivalent to that of a braced hoop structure of SAE 4130 steel-alloy round seamless tubing with a minimum outside diameter of 1.250" and a minimum wall thickness of 0.065". Caution: Tubing may rust on the inside where its resulting loss of strength is not easily detected.
c) Mounting: The mounts shall be constructed to distribute high impact and shear loads into the main cockpit structure in a manner such that the roll cage and main cockpit structures remain intact.

9. Aft Hoop - The structural cockpit shall be equipped with an aft hoop/rollover-type hoop that is securely fastened to the main cockpit structure immediately aft of the driver and is attached to the rear bulkhead.
   a) The contour of the top of the structure must follow the contour of the inside of the cockpit.
   b) The hoop shall be adequately braced fore or aft to the sides of the cockpit at canopy-sill level, securing the structure in an upright position and providing additional strength to the composite walls and the cockpit rear bulkhead.
   c) Strength requirements: The forward hoop must have minimum mechanical impact properties equivalent to that of a braced hoop structure of SAE 4130 steel-alloy round seamless tubing with a minimum outside diameter of 1.250" and a minimum wall thickness of 0.065". Caution: Tubing may rust on the inside where its resulting loss of strength is not easily detected.
   d) Mounting: The mounts shall be constructed to distribute high impact and shear loads into the main cockpit structure in a manner such that the roll cage and main cockpit structures remain intact.
10. Cockpit Lid
    a. Composite cockpit construction lay-up shall use a minimum of 1.0” thick, 1/8” cell, 5-lb. density Nomex core or equivalent. Inside skin must be a minimum of 0.040” thick S-glass or equivalent, outside skin a minimum of 0.060” thick glass or equivalent. Equivalent materials may include graphite, Kevlar, or other fibrous materials depending on lay-up techniques and schedules.
    b) Canopy mounting shall be reinforced at the cockpit-sill attachment, and the front hinge area.
11. Window Material. The clear portions of the canopy shall be fabricated of hot-formed polycarbonate-ply material at least 0.500" thick and shall be free of cracks, scratches, or hazing which could affect the driver's visibility. The glass is mounted with bolts through glass-fiber bushings in oversize holes in the polycarbonate-ply glass material. The bushings are held in place with RTV silicon.
12. Latch mechanism: The cockpit lid section of the cockpit should be secured in the closed position with a latch pin type latch mechanism. The latch should secure the aft frame of the tilt-up section of the lid to the main cockpit structure at a minimum of ONE location. A back-up release mechanism shall be provided.
    a. Release system handle: Primary lid release systems must be flush-mounted, inside/outside dual-handled systems.
    b. The outside handle shall be placed on or next to the canopy on the right side of the cockpit and rotate in a clockwise direction to release.
    c. Preferred mechanism is manufactured by Avibank (flush latch, PIN 9054-1).
    d. Handles shall be marked with canopy release information.
13. External Attachments to cockpit lid - External air inlets, cowling extensions, or other large devices shall be attached to the lid with lightweight aluminum or nylon fasteners designed to breakaway upon impact. Further, the attachments to the lid shall be kept to a minimum.

14. Cockpit Operation. All cockpit lids shall be able to be opened by the driver without any external assistance (use of springs or hydraulic lifters shall not be considered external assistance).
    a) No external device shall be mounted in such a manner as to prevent the driver from complying with above.
    b) All canopy openings, lids, hatches, shall be equipped with a handle or hand grip of sufficient size and strength to be used with a gloved hand to apply sufficient force to open the canopy opening after an accident.
15. Headrest - A headrest shall be attached to the aft bulkhead behind the driver's head.
    a) The headrest shall be positioned as close as practical to the helmet when the driver's head is in the normal operating position.
    b) The headrest must have a minimum contact area of 80 square inches.
    c) The headrest shall be designed to deflect not more than 2" rearward when a load of 250 Ibs. in the aft direction is applied.
16. Cockpit Dimensions - the following minimum criteria apply with the driver seated in the normal driving position.
    a) The inside top of the cockpit must be a minimum of 5" above the top of the driver's helmet. Additionally, the top of the driver's helmet must not extend to a height higher than that of a plane connecting the forward and main roll hoops.
    b) The headrest must be as close as practical to, and not more than 2" aft of, the helmet when the driver's head is in the normal operating position.
17. Aft Roll-Hoop Position. - The aft roll hoop must be a minimum of 4" aft of the driver's helmet or a minimum of 5" above the top of the driver's helmet.
18. Minimum cockpit-opening dimensions are here defined. Cockpit structure or roll-cage assembly must not encroach on the minimum openings specified. Padding or supports for driver comfort or protection that may be easily removed without the use of any tools may be fitted within the driver compartment and encroach on the cockpit openings only if such accessories are approved by the Director of Safety and Technical.
19. Canopy - The cockpit opening (with lid open) must conform to the minimum listed dimensions when measured on a plane projected parallel to the water and level with the top of the driver's shoulder.
    a) Opening length: 30" minimum.
    b) Opening width: 143/4" minimum for at least 14" along the opening length.
    c) Mobility/movement clearance: Design and construction of the driver's compartment shall allow the driver to withdraw legs rearward to the driver's chest while seated in the normal driving position (steering wheel removed).
20. Emergency Hatch - An emergency hatch shall be fitted in the bottom of the boat, immediately forward of or as part of the seat.
    a) For any hull built new after November 1996 the hatch opening must be no less than 17" wide at its widest point, no less than 25" long at its longest point, and shall be no less than 400-sq. ins. total area.
    b) Optional: The emergency hatch shall include 20-SQ. ins. of window of 1/2"-thick Lexan.
        a. If the emergency hatch is not equipped with a window, some other means of providing light must be provided inside a cockpit that is inverted.
    c) The driver shall demonstrate his ability to exit the cockpit through the emergency hatch when required by the Inspectors.
    d) To assist rescuers, the hatch shall be outlined with contrasting color.
    e) On or immediately adjacent shall be lettered appropriate instructions for rescue.
    f) To assist rescuers, the bottom shall be marked with dashed lines in contrasting color at the locations where cuts with a saw are to be made to release latch pins and/or mechanism should said mechanism become inoperative.
    g) The use of fabric tape to seal the escape hatch and canopy is allowed with the following restrictions. The tape color must contrast with the surrounding boat

surface, one end of the tape must be folded back on the adhesive surface to provide rescue personnel with a grip to aid in removal, and tape used on the canopy may not impede the driver from opening the canopy from within.

21. Padding and Continuity - All areas that may come in contact with the driver's helmet must be smooth and continuous. Wherever possible it is recommended that these areas be padded with an energy-absorbent material.
    a) All areas that may come into contact with the driver's legs, arms, torso and feet shall be as smooth and continuous as possible with support and padding such as energy absorbing, high-density foam.
22. Driver Restraint System - A six-point (or inverted-V) quick-release belt system is required.
    a) All Driver Restraint Systems shall be returned to the manufacturer every two years for inspection and recertification, if not replaced.
    b) The driver restraint system must be clearly labeled as meeting SFI Spec 16.1 and be dated by manufacturer.
    c) Geometry Guidelines-Systems must meet guidelines shown in Figure 1-3, Appendix B.
    d) All straps must be of nylon or Dacron polyester material.
    e) A latch/lever type quick-release mechanism or rotary mechanism shall be used.
        (1) Latch/lever release utilizes a lever opening away from the body in a right to left, or left to right hand movement, parallel to the lap belt with a complete release of all belts and must have a provision for unintentional release.
    f) The restraint system must feature dual 2” or 3"-wide shoulder straps and lap belt rated at 9,000 lbs.
    g) The anti-submarine straps must be a minimum of 1 23/32" wide rated at 5,000 lbs.
    h) Attachment hardware such as shoulder bolts, eyebolts, or other bolts used to secure the harness to the cockpit structure shall be sized to withstand the rated strength of the straps.
        (1) Adequate doublers, braces, and strengthening of the cockpit structure local to the attachment hardware mounting points shall be provided to ensure that harness loads are distributed to the cockpit structure.
    i) Belt lengths shall be kept as short as possible.
    j) Seat/lap belt shall be worn in such a manner that it passes around the pelvic area at a point below the anterior superior ileac spine.
        (1) Under no condition may it be worn over the area of the intestines or abdomen.
        (2) Installation/mounting: The belt must not pass over the sides of the seat, but must come through the seat at the bottom of each side thereby wrapping and holding the pelvic area over the greatest possible area.
        (3) Where the belt passes through the sides of the seat, the seat edges shall be rolled or grommeted to prevent chafing or cutting of the bell
        (4) The belt shall be positioned such that the straps pull down and aft, with the anchor points or location where the belt passes through the sides of the seat positioned forward of the theoretical line of intersection of the seat back and seat bottom, as close to the driver's hips as possible.
    k) Shoulder Straps - Two individual straps of adjustable length, with metal ends designed to join the seat/lap belt at the quick-release mechanism thereby forming a single release point for the seat-belt shoulder-harness system, are required.
        a. Y-type shoulder straps, in which the two straps become one common strap behind the driver (military-transport type), are not permitted.
        b. Installation/mounting: Harness straps shall be attached directly to a strong structural member of the cockpit close behind the driver's head and neck. At points of attachment they should be 4" to 6" apart.
        c. Straps shall be attached to a line approximately 90 degrees (in a vertical, x-z

plane) to a line of the seat back.
    d. Edges of structure shall be rolled or grommeted where the straps pass through the seat or cockpit structure to prevent cutting or chafing of the straps.
    e. Position/mounting: The shoulder harness shall be mounted (or routed through a guide) not below a line drawn downward from the shoulder point aft at an angle of 40 degrees with the horizontal, and not above the shoulder.
    f. In cases where the driver is reclined in excess of 40 degrees, the shoulder harness shall be attached so that the angle (in a vertical, x-z plane) between the driver's spine and the shoulder harness exceeds 45 degrees.
    g. Within these guidelines, the lower position is preferred.
l) Dual or inverted V anti-submarine/crotch straps are required.
    a. Straps shall be positioned such that the belt straps pull down and aft, with the anchor points (or locations where the belts pass through the bottom of the seat) aft of the driver's crotch.

23. Seating System - To the degree practical, the seating system, whether reclining or upright, must provide lateral support on both left and right sides.
    a) It is required for reclining positions that the seat be fitted with a kick-up or roll-up forward of the buttocks of sufficient height and strength to prevent forward movement and/or rotation of the torso under the seat belt.
24. Steering Wheel- The steering wheel must have a quick-release hub system.
    a) The only quick-release steering wheel coupling allowed shall be the 360-degree, sliding, spring-loaded hub type collar.
    b) Acceptable types include, but not limited to Competition Systems (PIN QR-6A).
    c) Alternative manufacturer shall be approved by the Chief Inspector and Director of Safety and Technical prior to installation and use.
25. An emergency air system/breathing system, designed to supply the driver with air should the vehicle experience an accident or sustain damage such that the cockpit fills with water, is required.
    a) The breathing system must be capable of supplying a minimum of 30 minutes of reserve air to the driver.
    b) Systems must use a compressed-air bottle of no less than 50 cubic-foot size.
    c) Pure oxygen systems are not permitted.
    d) All compressed-air bottles shall be mounted within the structural cockpit and secured both around the diameter of the bottle with a substantial over-center, adjustable tension clamp or equivalent method, and by a solid mechanical restraint at the neck of the bottle to prevent movement along the centerline of the bottle. (The intent is to prevent rotation and movement in any direction. Furthermore, care shall be taken to prevent damage to gauges, fittings and/or valves.)
    e) All compressed-air bottles shall be visually inspected on an annual basis.
    f) An up-to-date "VIP" sticker shall be displayed on each bottle at all times.
    g) The drivers air hose must be between ten (10) and fifteen (15) feet long; measured starting at the center of the steering wheel. A quick release coupler must be installed in the air supply between the first stage regulator and the second stage regulator, located between ten (10) and fifteen (15) inches from the drivers mask or helmet.
    h) A quick release coupler must be installed in the air supply hose between the first stage regulator and the second stage regulator, located between ten (10) and fifteen (15) inches from the driver's mask or helmet.
        a. The coupler/nipple to be used is a Parker stainless steel fluid connector, part number SHI-62 or the RECOMMENDED SHI-62SL/SHI-63; with the male nipple on the mask side and the female coupler end mounted on the air supply side.
        b. If the SHI-62SL/SHI-63 is used a 1 inch minimum bright yellow band must be placed on the hose next to the fitting.
    i) All connections in the air system must be done with commercially accepted or

scuba type-high pressure crimped ends. Hose clamps are not allowed.

j) All cockpits are highly recommended to have a secondary emergency air supply for the driver that is completely separate from the primary system above.

26. Strobe Light/Signal System - All boats shall be equipped with a white strobe light.
    a) Suggest Whelen Power Supply (PIN A-490; strobe beacon bulb, P/N A-625).
    b) The strobe beacon shall be mounted in a visible position and shall be operated from the cockpit for the purpose of signaling race officials.
27. Mirrors - Right and left rear-view mirrors shall be strategically mounted external to the cockpit to provide the driver with adequate rearward vision.
    a) Suggest Yamaha (PIN 2GH-2629O-00 right and 2GH-26280-00 left).
28. Radio - Each boat must have a FCC-licensed, working two-way radio on board.
    a) The crew chief shall furnish a copy of the FCC license at annual inspection.
    b) The intent of this rule is to enable relayed communications between the Director of Competition and the drivers.
29. At all times during an event (testing, time trials, and competition), drivers are recommended to connect their helmets to a nationally recognized head and neck restraint device/system. The head and neck restraint device/system, when connected, must conform to the manufacturer's mounting instructions, and must be configured, maintained and used in accordance with the manufacturer's instructions.

J. EMERGENCY SYSTEMS

1. The fuel shut-off, master electrical switch and fire-suppression controls shall be duplicated inside and outside the cockpit.
2. Outside switches shall be grouped in an "E" (emergency) area on the right aft side of the fixed cockpit cowling.
3. Appropriate markings shall be placed:
    a) Yellow square around a black circle with yellow letters FUEL
    b) Red lightning bolt and red letters ENGINE OFF
    c) Red triangle and red letters FIRE.
    d) Letters shall be no less than 3/8 inch high, and shall be contrasting to surrounding color(s).
    e) Alternate markings as furnished by H1 may be used.
4. These switches shall be accessible without removing or opening a cover plate; therefore recessing them in the cowling shell is good practice (to avoid damage or accidental activation).
5. Any system that requires a push or pull to activate shall be so marked "PUSH" or “PULL” in letters no less than 1/2 inch high, and shall be contrasting to surrounding color(s).

K. FUEL & OIL SYSTEMS

1. Oil, water, and water-alcohol are defined as "combustible fuel" when used in engines.
    a) The intentional introduction of fuel into the engine lubricating oil or the gearbox oil shall be considered a violation of the rule.
    b) Interpretation - Dilution of the engine lubricating oil or the gearbox oil by more than 25% shall be considered a Class II violation, by more than 50% shall be considered a Class I violation.)
    c) Water and water-alcohol must be contained in tanks as specified below.
    d) Combustible gas such as nitrous oxide must be contained in appropriate pressure tanks designed for that purpose. (Note that injection of water, water-alcohol, and nitrous oxide is permitted only in certain piston engines.)
2. System Material and Construction - SCCA, USAC, or NASCAR bladders are recommended; although fuel/oil tanks made of steel or aluminum may be used. Fuel tanks may be fiber glassed. Tanks shall be adequately baffled and must be separate

and not an integral part of the boat. Tanks shall be supported in two places or more. A variance has been granted for Leland Unlimited, Automotive Power Unlimited that the fuel tanks may be an integral part of the boat.

3. All tanks having combustible fuel shall be grounded; filler caps shall have a common ground with tank.
4. All fuel tanks shall be externally vented outside the hull.
5. All fuel and oil lines, water lines, and other plumbing shall be secured by clamps or other methods to the hull structure.
6. The routing of fuel lines into the cockpit area (as for instrumentation) shall be expressly prohibited.
7. All tank straps and mounts, especially those for fuel and oil, must be accessible for inspection after all installations are complete.
8. If inspection holes in boat structure are necessary owing to lack of visibility, they shall be provided before boat is cleared from inspection.
9. There shall be no sealed compartments in the boat. All compartments must have deck hatch access, or be visible through other compartments.
10. Any and all overboard drains that have access to, or are connected to, the engine compartment must not be of the self-bailing (open) type, and shall be closed at all times except when the boat is on the trailer.
    a) Any discharges from these drains shall be collected in proper containers.
    b) No gearbox, engine, or oil tanks shall be vented in such a manner that pollutants enter the water.
    c) The intent of this rule is to protect the environment by preventing any or all discharges of pollutants into the water, whether intentional or accidental.
11. Each boat must have the means for shutting off the engine in an emergency.
    a) The capability shall be demonstrated to shut off the engine and disconnect all electrical circuits within three seconds.
    b) Turbine-powered boats, in addition to or in lieu of an electromechanical fuel shut-off system, must have a mechanical fuel shut-off independent of the fuel control.
    c) The shut-off handle shall be duplicated: 1) inside the cockpit and 2) outside, in the "E" area.
    d) The emergency shut off valve shall be mounted in the boat. It shall be mounted between the forward side of hot end and aft side of oil cover plate. No quick release ends shall be allowed. Rod ends shall be through bolted with aircraft quality bolt and ny-lock nut. The shut off valve shall be dead-headed (i.e. there shall be no by-pass path for the fuel.)
    e) For turbine-powered boats, the emergency shut off valve shall be an independent valve. It shall not share function with any other control.

L. ELECTRICAL SYSTEMS

1. Master Switch - A master switch for all sources of electrical power is mandatory. It is recommended that this master switch include the boat's ignition system if possible.
    a) The master switch must be adjacent to (or, if possible, incorporated with) the fuel shut-off.
    b) Both functions shall be duplicated: 1) inside the cockpit and 2) outside, in the "E" area
2. Circuit Breakers - A circuit-breaker system is recommended.
3. Battery Mounting and Ventilation - Batteries must have a box or frame that provides adequate support in vertical, side-to-side, and fore-and aft directions.
    a) Batteries shall be vented externally to the atmosphere.

M. FIRE PROTECTION AND EXTINGUISHING SYSTEMS

1. Each boat shall have on-board Halon (or equivalent) fire extinguishing system(s).
    a) It is mandatory that the fire extinguishing bottles be securely mounted outside

cockpit area.
   b) The Chief Inspector or designee shall inspect and approve the systems and locations.
2. Halon 1211 and 1301 are the approved fire-suppression gasses. Alternates to Halon may be permitted if requested in writing, and approved by H1.
   a) Halon 1211 is not permitted for cockpit use.
3. The minimum weight of charge for Halon 1211 is 15 lbs.
4. Spray heads shall be placed in areas where fire is most likely to occur, e.g. engine compartment, battery, electrical, and fuel areas.
   a) A minimum of three heads is recommended for the engine compartment, especially around the turbine "hot end" of turbine-powered boats.
5. The 1211 fire system must be easily activated by switch or lever from both the inside and outside the enclosed cockpit.
   a) It is mandatory that the outside controls for fire suppression, fuel shut-off, and engine off be grouped in an "E" area on the right aft side of the cockpit cowling, appropriately marked per Rule 11/J -Emergency Systems."

N. THROTTLE

1. Throttle Systems/Controls - The throttle-return springs shall be attached at the fuel control, carburetor, or injector controls, as well as on the foot pedal in the cockpit.
   a) The springs must be of sufficient strength to provide immediate shut-off in an emergency situation.
2. All ball sockets shall be safety-wired or taped.
3. No setting fuel control to ground idle minimum. Throttle must work in such a way that when ground idle detent is in off position; throttle springs shall pull fuel control arms to off position.
4. There shall be one throttle cable connected from the foot pedal in the cockpit to the turbine engine fuel control unit. This cable shall connect to the N1 throttle lever only on the fuel control unit. The power turbine N2 throttle lever shall be fixed [lock wired] in a set position at all times.
5. Toe straps, or a totally enclosed toe area on the foot petals in the cockpit shall be prohibited.

O. STEERING

Steering systems include rudders and skid fins. Note carefully the certification requirements discussed at the end of this section.

1. Rudders must be the standard blade-and-post type in one piece, whether fabricated (welded) or integral (cast or forged).
   a) Each rudder shall be designed to withstand minimum lateral forces, applied separately, of 40,000 Ibs. at the planing waterline and of 10,000 Ibs. at the lower edge.
   b) Rudders may be cast, forged, or fabricated by a certified welder or established boat builder.
      (i) The Chief Inspector shall approve the design and the manufacturing technique before construction.
      (ii) Rudders shall be made of 4330 steel heat-treated to at least 36 Rockwell and with a minimum finished thickness of 3/4" measured at planing/racing line, or of an equivalent material.
      (iii) Grain must run vertically or in the longest direction of surface.
      (iv) Shot-peening of the entire rudder is recommended.
   c) The rudderpost must be at least 2" in diameter at the base (lower bearing) and for a distance extending at least 3" above the base.
      (i) Filleting at the base of minimum 1/8" radius is required. Upper and lower bearing surfaces must be no less than 7" apart center to center.

2. Mounting - Rudders shall be attached through the transom to a load-carrying substructure within the hull.
    a) The rudder bracket or attachment shall be made of 4130 chrome-moly steel plate or tubing stress-relieved and heat-treated to at least 32 Rockwell, 6060- T6 Aluminum, or of an equivalent material.
    b) Plate is recommended; tubing is subject to internal corrosion, which makes it unsatisfactory over time.
    c) The bracket shall be designed and built to withstand a static radial load of at least 40,000 Ibs.
        (i) The Chief Inspector shall approve the design before construction.
    d) The bracket shall be fastened to the substructure with at least four 3/4" diameter or equivalent, cad-plated bolts each with a minimum tensile strength of 160,000 psi and a minimum shear strength of 95,000 psi.
    e) Bolt holes shall be placed on 7" centers, minimum, in a square or rectangular pattern of at least 80 square inches.
        (i) Additionally, brackets shall be glued to substructure in the same 80-sq.in. area, using Hysol or equivalent with a 4,200-psi tensile lap-shear strength, minimum.
    f) The substructure shall be designed to accommodate the maximum load when turning, and the direction of that load.
    g) Control types: The push-pull rod/pitman arm steering-box systems must be of standard Ross, Casale, or equivalent type.
    h) Rods: Push-pull rods must be capable of sustaining no less than 25,000 Ibs. loading. No brazed fittings or joints are allowed.
    i) Rod ends: Rod ends must be minimum 3/4"-bore aircraft quality, identified (stamped) by part number.
        (i) They must be rated to sustain a minimum radial static load of 25,000 psi.
        (ii) Rod ends cannot be ground or modified in any way.
        (iii) Thread engagement shall be no less than 1-1/2 times thread diameter.
    j) Rod attachments: Jam nuts may be used to attach push-pull rod to pitman arm and quadrant if latter are threaded.
    k) Cables: Cable/chain steering must employ a minimum 3/16"-diameter 7 x 19 stainless aircraft-type cable.
    l) Bolting: All bolts in steering linkage must use castle nuts and cotter keys, and/or safety wire, and/or bearing retainer nuts and washers. .
3. Skid Fin. Skid fins shall be designed to withstand minimum lateral forces, applied separately, of 40,000 Ibs. at the planing waterline and 10,000 Ibs. at lower edge.
    a) Material: Skid fins shall be made of 4340 steel or of equivalent material.
        (i) Grain must run vertically or in the longest direction of surface.
        (ii) Shot-peening of the entire skid fin is recommended.
    b) Mounting: If the skid fin is mounted in a bracket-tie rod assembly, it shall be attached to primary hull structure at engine stringer and sponson transom.
        (i) A deck hatch shall be installed for inspection of skid fin mount and supports.
    c) The bracket shall be fastened to the hull with at least eight 3/8"-diameter high-strength aircraft quality bolts placed within an area of at least 100 square inches.
        (i) Avoid concentrating bolt holes in line along high-stress areas.
        (ii) Additionally, bracket shall be glued to hull in the same 100-sq. in. area, using Hysol or equivalent with a 4,200-psi tensile lap-shear strength, minimum.
    d) Unless specifically agreed otherwise by H1 inspectors, at least five tie rods are required, with a total load-carrying capacity of 40,000 lb. Minimum
        (i) No less than the equivalent of three (3) tie rods shall be under tension (the lower position) unless approved by the Chief Inspector.
        (ii) Tie rods must be 7/8"-diameter (0.875”) heat-treated steel with a minimum tensile strength of 180,000 psi. If two (2) tie rods are proposed for the lower position, then rod diameters shall be one inch or more in diameter.

(1) Drawn Over Mandrel (DOM) tubes or equivalent for skid fin tie rods in lieu of the minimum diameter solid rods. Such tubes shall have a minimum wall thickness and material tensile strength to meet or exceed the capability of the solid rods specified in 12.3.d.ii.

(iii) Rod ends must have a minimum 7/8"(0.875") bore (unless specified commercial ends specified below) and be of aircraft quality and so identified (stamped), or aftermarket machined (from solid billet) and meet H1 minimum standards.

(1) The following commercially available acceptable rod ends from Aurora Bearing Company shall be allowed:

AM-14T-70 (RH Thread) RXAM-12T-1 (RH Thread)
AB-14T-70 (LH Thread) RXAB-12T-1 (LH Thread)

(iv) Solid billet tie rod ends are required for tie rods under tension, unless commercial ends specified above.

(v) All tie rod ends shall be capable of withstanding a minimum radial load of 25,000 pounds

(vi) Rods shall be as close to parallel as possible when viewed from the rear, and as close to perpendicular with the skid fin and hull as possible.

(vii) At no time shall the rods be pre-loaded in either tension or compression for the purpose of adjusting alignment (e.g. trim of toe-in). Alignment shall be accomplished solely with shims between the fin and sponson bracket, and not by pre-loading the rods and bending the bracket.

e) Dimensions: The skid fin shall have a minimum thickness above the waterline of 3/4" (0.750") measured at any point (excluding the thinned down webbing as part of the structural skid fin and attaching area).

(i) The waterline shall be determined by projecting a line aft from the deepest flat surface on the bottom of the sponson runner.

f) All bolts and nuts not mating with parallel surfaces shall use alignment washers (e.g. spherical or wedge) on the non-parallel joint surfaces.

4. All skid fins and hardware shall have a serial number engraved or etched in a visible location when installed on the hull. Skid fins or hardware without a s/n shall not be allowed to be run.
   a) For the purpose of this rule, hardware is defined as all rods, rod ends and ALL mounting brackets whether mounted to the hull or skid fin.
5. All rudder and skid fin mounting brackets attached to the hull shall be removed following the schedule below and be subject to Magnaflux or dye penetrant inspection:
   a) Beginning with the 2014 season, subject hardware shall be removed for testing in even years.
   b) Subject hardware may be left on and tested attached to the hull in odd years.
   c) This rule applies to: sponson transom skid fin bracket(s), non-trip skid fin brackets and rudder bracket(s).
6. Certified testing of all metal parts referred to in these rules shall be non-destructive particle testing for cracks. The accepted methods are magnetic particle testing (Magnaflux) for ferrous metals and dye check (Zyglo or equivalent) for non-ferrous metals.
7. Steering Component Certification. Magnaflux and inspection papers covering rudders, steering cable, skid fins and all skid fin hardware shall be presented at any annual safety inspection and at the boat's first race of the season.
   a) A certificate must be available for the race inspector's observation at anytime during the season as proof the tests have been conducted.
   b) All certification documentation shall list each component tested by serial number and list results of test for each s/n. (Documentation with a "lot certification" shall not be acceptable.
   c) Each rudder and skid fin shall have a number stamped on it to identify inspection record with the item.

8. Hardware: Rudder and skid-fin mounting brackets, pitman arms, push-pull rods, and cable steering quadrants must have a Magnaflux or Zyglo inspection at least once a year. All plated-steel steering components shall be baked.
9. Cable Test: Steering cables shall undergo a certified pull test to a minimum of 1500 pounds on even years. (Double the normal working load of 3/16"-diameter 7 x 19 stainless aircraft-type cable)
10. Power steering connections must have the same minimum strength standards as the skid-fin brackets and tie-rod ends. Hydraulic hoses and connections must have a minimum psi rating of 2000.
11. All steering cables shall be removed from the boat every year and all steering components, including pulleys, shall be inspected for corrosion, wear and damage.
    a) Crew chief shall be responsible for compliance and shall sign off on the Annual Inspection Form that this inspection has been completed.

P. PROPULSION SYSTEMS

1. Propulsion systems include propellers, propeller shafts, shaft logs, and struts.
2. Rear Strut. The rear strut may be fabricated of either steel castings or forgings, with mounting area to hull a minimum of 150 square inches.
    a) The strut must carry load into stringers, and shall be tied directly into an aluminum plate at least 3/8" thick or equivalent
    b) Mounting shall be with a minimum of six 1/2" or four 5/8" high-strength aircraft-quality bolts.
3. Intermediate Strut. The intermediate strut shall be fabricated of forged aluminum or cast steel or equivalent.
    a) The strut must have a hull mounting surface of minimum 50 square inches.
    b) Mounting shall be with a minimum of six 1/2" or four 5/8" high-strength bolts of aircraft quality.
4. Propeller Shafts. Propeller shafts must be of K 500 Monel or equivalent material with minimum diameter of 1 3/4".
    a) 1-1/2 inch diameter for T-53 powered boats

Q. LIFTING SLINGS

1. All components used to lift the boat must be in good condition. Metal parts must be free of rust, wear, and cracks; nylon parts must be free of wear or fraying. No aluminum collector rings are allowed. The only approved boat-lifting sling is of the four-leg nylon type. The use of spreader bars is not allowed.
2. All lifting slings must pass annual inspected by the H1's Chief Inspector.
3. Rings - Collector rings shall be certified to four times the weight of boat or to 25,000 Ibs., whichever is greater.

RULE 12 - ENGINE and FUEL

A. ENGINES ALLOWED

1. A single Lycoming T55-l-7B/C gas-turbine engine (or commercial derivatives), a single Honeywell T-53-L-13-BA gas turbine engine, a single aircraft V-12 piston engine (not exceeding 2,250 cubic inches), or any number of automotive or marine-type reciprocating engines (within the bounds detailed below) may be used.
2. Engines must be inboard-mounted.
3. Requests for use of power plants not specifically referenced in the current Rulebook shall be submitted to the Competition Committee for evaluation and approval based on sustainability, reliability and performance criteria.

B. GAS-TURBINE ENGINES

1. Only single-engine turbine-powered boats are allowed.
2. Turbine powerplants approved are the Textron Lycoming models T55-L-7B, T55-L-7C, and TF-25 and Honeywell Int'l; LLC Model T-53-L-13-BA.
3. The T55-L-11 is prohibited.
4. The intent of the rule is to compete with engines that have similar factory-rated horsepower.
5. The inspection criteria to determine compliance with the above standard shall include:
   a) No more or less than 36 inlet guide vanes
   b) No more or less than 28 1st stage compressor blades
   c) T55-L-7C fuel atomizers (blunt or bullet '2-300-321-01') must be used
   d) Stock T55-L-7C start fuel nozzles are required
   e) No more than 1 gas producer wheel
   f) No more than 2 power turbine wheels.
6. All turbine engines shall be maintained at "stock" external dimensions, including length/size of compressor section, inlet areas, etc.
7. All turbine engine parts shall be OEM Lycoming-supplied "stock" parts.
   a) Permission to use and any non-O.E.M. parts must be requested in writing to the Owner's Committee.
   b) If granted, variances for use non-OEM parts shall be issued in writing by H1 and shall apply to all competitors, not just the requesting team.
8. No turbine engine shall use an early style power turbine wheel, Part numbers 2-140-050-27 and 2-140-012-21 at full allowed fuel flow and maximum N-2 RPM ration. These parts shall be allowed "only" with the additional limitations of no more than 4.0 GPM fuel flow, and that the maximum sustained N-2 RPM shall not exceed 100%.
   a) Inspections shall be done by removing the 4/5 bearing pack cover, or by exposing the face of the first power turbine wheel.
   b) Use of these parts are to be reported and the engines using these parts must be identified and marked.
   c) Any race engine using these parts not reported, marked or exceeding these additional limits would be considered a Class I violation.
9. Coating and rework of internal components to come up or maintain original OEM specs is allowed.

C. FUEL

1. The preferred fuel is Kerosene K1 clear. If Kerosene K1 is not available, Jet A shall be allowed.
2. If neither K1 or Jet A is available locally, #1 diesel clear, #2 diesel clear, stove oil, fuel oil, shall be allowed.
   a) Fuels other than K1 or Jet A must be approved by the Chief Referee.
3. Race Sites shall notify the Chief Referee within 30 days of the event as to the type fuel to be used
4. The Chief Referee shall notify crew chiefs of fuel type used at the event.
5. Each site shall purchase fuel at the lowest cost available.
6. No additives are permitted, except those intended for moisture control (e.g. Prist), purchased over the counter
7. All fuels are subject to testing at any time by H1
8. All racing teams shall be required to use the fuel provided at the race site by the promoter for racing and qualifying.
9. All transported fuel shall be consumed or discarded prior to arrival at the next race site.
10. Pre-approved biofuel as produced or sold for commercial use shall only be used during testing and not for qualifying or competition.

11. The use of biofuels for qualifying and competition shall be approved on a case by case basis for an individual competitor only when approved by the Competition Committee and the Board of directors.

D. FUEL SYSTEM

1. The fuel system must be per original equipment specifications.
   a) No electrical controls or actuators are permitted on the fuel control or the pressure relief devices.
   b) Fuel-line sizes shall be maintained per T55-L-7 specifications.
      (i) The engine-driven boost pump (P/N 2-160-790-04) must have a -10 (dash ten) 0.609"(39/64") inlet size and exit through a barrier fuel filter (P/N 2-170-430-02) to the fuel control inlet.
      (ii) The fuel control high-pressure discharge port must be -6 (dash six) or internal passage of 0.296"(19/64").
   c) The fuel control must be only of T55-L-7B model number (JFC 31-12, PIN 592964 L-13), (JFC 31-12, P/N 706680) or T55-L-7C model numbers (JFC 31-15 or JFC 31-17, P/N 717717 L-14) as designated by Hamilton Standard.

2. All T-53 powered boats shall be fitted with fuel controls of T53-L-13-BA and all fuel line sizes maintained per T53-L-13-BA specifications. Approved alternative bleed band actuation systems shall be allowed.
   a) A system shall only be approved after an acceptable technical description with schematics and drawings has been submitted to H1
   b) The technical description, schematics, and drawings shall not be considered proprietary and may be distributed.
   c) Alternative bleed band actuation systems may be electrical or mechanical.

3. All fuel flow sensors, fuel shut off devices, pressure transducer, substitute lines and/or fittings shall be installed as shown in Figure 2-2, Appendix C.
   (a) A pressure sensing device may be installed between the fuel control and the fuel oil heat exchanger. The pressure-sensing device and all associated lines shall be in full view with the engine cowling removed.
   (b) All lines shall not pass through any frame or stringer in such a way as to interfere with visual observation.
   (c) All engines shall be plumbed as stock with the exceptions noted in these rules. All lines shall be run as short as possible, except where specified length is called out.
      (i) The Chief Inspector shall have right to make a boat team change hoses/plumbing to stay within the intent of rules.
   (d) Bypass valves shall NOT be allowed.
   (e) It is not permissible to have any other components in the system other than those shown in Figure 2-2, Appendix C.
   (f) The team is allowed to use one fuel flow meter in the fuel system. This meter may be placed at either point indicated in the fuel schematic but only one meter shall be used.
   (g) A spacer shall be installed in the MIN FUEL adjustment assembly per Figure 2-3 in Appendix C if the modified MIN FUEL method is used to limit fuel flow.
   (h) The MIN FUEL adjustment shall be set at or below the maximum fuel flow allowed.
   (i) All fuel shut-off devices, both on the low and high pressure side shall be manually operated. (No electric solenoid valves allowed on any fuel line, except the start fuel circuit.)

4. The fuel-oil heat exchanger must be plumbed as outlined in Lycoming maintenance books.
   (a) No substitute liquid may be used in the heat exchanger.
   (b) No device that alters any of the properties of the fuel shall be used prior to the flow control device. (Example - an external heat exchanger.)
   (c) No external cooling of engine oil is allowed.

(i) Cooling of the oil superficially cools the fuel, which is considered altering the property of the fuel.

5. Except as noted below, the start fuel system must be plumbed in stock configuration, as outlined in Lycoming maintenance manual. The energizing of the start fuel solenoid valve shall be by means of a single, hand-operated switch, not to be mounted on the steering wheel.
   (a) The number of start nozzles shall be two.
6. All fuel system plumbing must comply with the specifications and diagrams supplied by H1.
   (a) No extraneous plumbing shall be allowed.
   (b) The Chief Inspector or designee shall have the right to require a team to remove completely from the hull any extraneous, non-essential hoses, fittings, sensors, transducers, actuators, or any device he determines to be non-essential.
   (c) A 2 inch section of 3/8 inch clear PVC tubing shall be installed into the burner can/fuel manifold drain line as far from the engine as is practical. (Suggested material: Weatherhead PT-200 3/8" clear PVC tubing.)
      (i) The tubing shall be connected with Weatherhead "Mini-Barb" or equivalent fittings.
      (ii) Push-on type fittings (Aeroquip "Socketless" or Weatherhead "Barb- Tite") modified to Mini-Barb" dimensions are acceptable.
      (iii) The intent of this device is to insure the proper use of the buener can/fuel manifold drain line.

E. FUEL FLOW

1. The maximum fuel consumption of all turbine engines shall be 4.200 GPM.
   a) It shall be the responsibility of each competitor to comply with this rule.
2. The two approved methods to limit maximum fuel consumption shall be:
   a) The stock adjustments as provided on the Lycoming/Textron fuel control;
   b) The modified MIN FUEL adjustment as detailed in Appendix C Figure 2-3.
   c) Teams wishing to use an alternate flow control method or device must request and receive permission in writing from the H1.
3. H1 shall issue two flow meters to each boat camp for the purpose of monitoring engine fuel consumption and mounted as directed by the Chief Inspector or Chief Referee.
   a) Flow meters shall be mounted in such a way as to prevent damage to the meters and protect against liquid intrusion. (E.g. The pickup connection shall be pointed down.)
   b) A fuel filter shall be installed in the fuel line prior to the low-pressure fuel flow meter.
   c) The #12 fuel line entering and exiting the H1 low-pressure flow meter shall be run in a straight line for no less than five (5") inches (on each side of the flow meter). The flow meter shall be mounted in a horizontal position. No other flow meter or parts shall be run within this distance.
   d) The high pressure fuel flow meter shall be mounted between the fuel oil heat exchanger and the flow divider, using only hoses and fittings specified by H1
   e) The #6 Teflon fuel line running into the H1 high-pressure flow meter shall be run in a straight line for no less than three (3") inches. The flow meter shall be mounted in a horizontal position on top of the liquid-to-liquid cooler with the cable connection pointing down.
   f) In the event that H1 adds a second high pressure meter to the fuel system, the designated meters will be mounted as follows:
   One in front of the liquid-to-liquid cooler with a minimum of three (3") inches #6 Teflon fuel line in a straight line on either side of the meter.
   The second meter will be mounted after the liquid-to-liquid cooler with a minimum of three (3") inches #6 Teflon fuel line in a straight line on either side of the meter.

g) The flow meter connectors may have tape applied to protect the connector from damage, disconnecting or liquid intrusion. The taping must be approved by H1.
h) Flow meters are issued with special caps on both ends.
(1) The flow meters shall be returned to the H1 Tech truck with the special caps attached
i) A fee of $100.00 shall be charged for each flow meter returned without the two supplied caps.

4. Any attempt by a racing team to circumvent this system, alter the settings of the system, alter data or violate the intent of the system or rule shall be considered a violation of the rule. This would be a Class I Violation.
5. A data acquisition device (data logger) shall be issued to each competitor for the purpose of recording and monitoring fuel flow and maximum N2 RPM of the engine.
a) This data logger shall be installed per H1 issued guidelines, and sealed by H1.
b) The data logger shall be mounted inside the cockpit or in a protected location, such as under the deck, which is easily and quickly accessible.
c) Any location other than inside the cockpit or under the deck may be considered, and must receive approval in writing by the Chief Inspector or Chief Referee.
d) The intent is to protect the logger and connectors from the harsh environment of the engine compartment.
6. Upon completion of any heat, the data logger shall be removed immediately prior to the boat being lifted out of the water and taken by a crewmember directly to the H1 technical truck.
7. All flow meters, cables and data loggers must be clean when returned to the H1 truck.
8. An entry who returns any H1 issued equipment that is damaged or destroyed shall be charged 150% of the cost of the replacement parts alone to cover labor.

F. FUEL FLOW VIOLATION

1. The maximum fuel flow shall be 4.200 GPM
(a) The maximum fuel flow shall be measured by the High pressure flow meter.
2. An occurrence of non-compliance shall be defined as any time the fuel flow exceeds the 4.200 GPM for more than 3.000 seconds.
3. A flagrant occurrence of non-compliance shall be defined as:
(a) Any time the 4.200 GPM is exceeded for more than 5.0 seconds;
4. A boat shall be considered to be in compliance while getting under way. Getting under way shall be defined as the period commencing at 0% N2 and ending 30 seconds after the engine reaches 70% N2 on any engine start or restart.
(a) A restart shall be defined as 0% N2 reading during a heat.
5. Any boat having an occurrence during a time trial attempt shall have the time trials speed for that attempt noted as Time Not Recorded (TNR).
(a) If the speed is above 130 MPH, the time shall be recorded as 130 MPH.
(b) In case of a tie, the actual speed above 130 MPH shall be used to break the tie.
6. Any boat found to have an occurrence during any heat shall be fined $100 per occurrence for the first two (2) occurrences during any one heat.
(a) Any boat accumulating three (3) or more occurrences during a single heat at an event shall have the third and subsequent occurrences in that same heat elevated to a Flagrant Violation.
7. Any boat found to have a flagrant occurrence during a heat shall forfeit all points earned for that heat and all boats behind shall move up one position.
8. Any boat found to have a flagrant occurrence during the Final Heat shall be disqualified.
9. The intent of the fuel flow rule is that all competitors shall MAINTAIN fuel flow AT or BELOW the designated 4.200 GPM maximum fuel flow.
10. Fuel flow data shall be read and recorded from the flow meters with a Smoothing Factor of four (4) points applied to the Racepak DataLink II software.

G. CIRCUMVENTING FUEL AND N2 RULES

1. Any attempt by a racing team to circumvent or violate the intent of the fuel and N2 rules, or any violation or non-compliance shall be considered a Class 1 violation, subject to the penalty outlined in Rule 11 D.

H. N2 SPEED RESTRICTION

1. The maximum N2 RPM of a turbine engine shall be determined by H1
   (a). It shall be the responsibility of each competitor to comply with this rule.
   (b). For reference: 100% N2 for a T55-L-7C is 15,333 RPM, and for a T53-L-13-BA is 6471 RPM
2. The maximum allowable sustained N2 RPM shall be 110%.
3. The N2 sensor shall be mounted in such a way to prevent damage to the sensor. The sensor connector may have tape applied to protect the connector from damage, disconnecting, or liquid intrusion. The taping must be approved by H1.

I. N2 SPEED VIOLATION – OCCURRENCE OF NON-COMPLIANCE, AND FLAGRANT NON-COMPLIANCE

1. An occurrence of non-compliance shall be defined as any time the maximum N2 RPM is exceeded for more than 3.000 seconds.
2. A flagrant occurrence of non-compliance shall be defined as:
   (a). any time the maximum N2 RPM is exceeded for more than 5 seconds;
   (b). Or an occurrence during which N2 RPM exceeds 115% for more than 1 second.
3. Any boat found to have an occurrence during any single time trial attempt or any single heat shall be fined $100 per occurrence for the first two (2) occurrences during any one Time Trial attempt or heat.
   (a). Any boat accumulating three (3) or more occurrences during a single qualification attempt or single heat at an event shall have the third and subsequent occurrences in that same heat elevated to a Flagrant Violation.
   (b). Any boat having an Flagrant during a Time Trial attempt shall have the time trials speed for that attempt noted as Time Not Recorded and no points are awarded.
   (c). If the speed is above 130 MPH, the time shall be recorded as 130 MPH.
   (d). In case of a tie, the actual speed above 130 MPH shall be used to break the tie.
4. Any boat found to have a flagrant occurrence during a heat shall forfeit all points earned for that heat and all other boats shall move up a position.
5. Any boat found to have a flagrant occurrence during the Final Heat shall be disqualified.
6. If N2 ever reaches 118% and there is no indication of significant decrease in low pressure fuel flow (de-fueling), it shall be considered an occurrence.
   (a). The first and second occurrence in the same Time Trial attempt or heat shall carry no monetary penalty.
   (b). The third occurrence in the same Time Trial attempt or heat shall be elevated to a flagrant occurrence and shall result in the penalties described in I.3, 5 and 6 above.

J. ENGINE ACCESSORIES

1. All components that are visible on the exterior of the engine must be of identical configuration, appearance or function to those manufactured by Lycoming or an approved vendor for the T55-L-7C.
2. All components that are visible on the exterior or the engine shall be of identical configuration, appearance or function to those of OEM or an approved vendor for the T53-L-13-BA
3. The addition of in-line fuel filters is allowed.

K. INLET HOUSING AIR PASSAGE

1. The inlet air housing passage shall meet the OEM specifications and dimensions

defined by Lycoming.

L. ROTOR-BURST PROTECTION SYSTEM (RBPS)

1. All turbine-powered boats shall have a rotor-burst protection system installed whenever the engine is started at any sanctioned event.
2. The RBPSs described below are not to be considered the ultimate standards.
   (a). They have however been established as the minimum acceptable design based on analytical and empirical data.
   (b). While suggestions for design improvements are encouraged, any changes must be approved by H1
3. The minimum-standard RBPS consists of two parts, an aluminum cylinder and a Kevlar shield "blanket'.
   (a). Cylinder - The aluminum cylinder must be of 3/16" minimum thickness and must completely surround the turbine-wheel area or "hot end" of the engine, extending a minimum of four inches forward of the foremost GP-wheel and a minimum of four inches aft of the rearmost PT-wheel.
   (b). Shield - A Kevlar blanket shall be fitted around the aluminum cylinder.
      (a) The blankets shall be subject to inspection every year.
      (b) If the blanket is not continuous, the overlap must be down.
      (c) The blanket shall be constructed using either of two designs.
         (i) The "Continuous Wind" design shall be no less than 32 continuous layers of no less than 12" wide Style 745 Kevlar or an equivalent material wound onto a waterproof spool.
         (ii) A waterproof outside coating shall be applied so as to retain the Kevlar within the spool and provide ultra-violet protection.
         (iii) The "Fold and Wind" design shall be no less than 32 layers of 12" wide Style 745 Kevlar folded from a single piece of material.
         (iv) The folded Kevlar shall be wound onto a form capable of maintaining the shape of the blanket. The "cylinder"" may be used as the form if provision is made to protect the Kevlar from direct contact with the aluminum.
         (v) The wound Kevlar shall be secured by constraining straps around the circumference of the Kevlar.
         (vi) The number of winds required and the number of straps required shall be determined by using the formula NW x S x NS and shall be greater than or equal to 108,000, (where NW represents the number of winds, etc.)
            (a) Example #1. A 48" wide piece of Kevlar is folded 3 times, wound 8 times around the form and secured with 3 buckles rated at 5,000 pounds each. 8 times 3 times 5000 equals 120,000, which exceeds 108,000. Acceptable.
            (b) Example #2. A 36" wide piece of Kevlar is folded 2 times, wound 11 times around the form and secured with 2 straps rated at 4,910 pounds each. 11 times 2 times 4,910 equals 108,020, which exceeds 108,000. Acceptable.
            (c) Example #3. A 48" wide piece of Kevlar is folded 3 times, wound 7 times around the form and secured with 3 buckles rated at 5,000 pounds each. 7 times 3 times 5000 equals 105,000, which is not equal to or does not exceed 108,000. NOT ACCEPTABLE.
         (vii) The wound Kevlar shall be covered by a water-resistant material, which shall provide ultra-violet protection.
            (a) It is recommended that the straps be covered. If the straps do not have provision for ultra-violet protection they shall be replaced every 2 years.
4. RBPS systems shall not be allowed unless they strictly conform to the design and construction method stated above. Any such system shall not be used until approved by the Chief Inspector or Chief Referee.

5. RBPS systems shall be subject to inspection every year. If the RBPS system fails inspection a written report must be filed by the official and the owner shall receive an opportunity to repair or replace the RBPS system. A date and mark shall be placed on all RBPS systems that pass inspection.

M. RECIPROCATING ENGINES

1. Safety and Containment Systems - Systems shall be designed to contain debris resulting from damage due to backfire or explosion in the induction system or part failure or separation .
   (a). All Roots-type supercharger installations must have SFI-approved containment straps.
   (b). All flywheels shall have SFI-approved containment system.
2. Automotive engines are defined as any engine that is manufactured and used in domestic or foreign passenger cars and trucks, including racing engines that are based upon engines manufactured for passenger car or truck use.
3. No engine shall have more than eight cylinders unless that engine is specifically demonstrated to qualify in all respects as being automotive in design, manufacture, and use.
4. It is the intent of this definition to explicitly exclude engines that are of special or custom design and manufacture that are not used or based upon passenger or truck vehicles, even if manufactured by an auto maker.
   (a). It shall be at the discretion of the Chairman of H1 to determine if an engine qualifies as "automotive".
   (b). Anyone proposing to use automotive power shall need to obtain a ruling from the Chairman of H1 on that proposed power plant.
5. Automotive rules shall not be changed for at least five (5) years after the first boat runs.
6. All other reciprocating engines that are built in quantities of less than 100 per year may be run. Participants desiring to utilize such power shall submit proof of reliability thru actual dyno sheets or other sustantiated evidence assuring reliability under conditions similar in duration and high rpm loads of an Unlimited hydroplane race. Evidence must be provided that there exists a ready supply of parts necessary to build an entire engine in quantities of no less than four (4).

RULE 13 • GOLD CUP RACING RULES

A. REGATTA LOCATION AND AUTHORITY TO CONDUCT

All matches shall be held under the rules and regulations of H1 and APBA.

B. SUPERVISION & CONDUCT

Supervision of the actual conduct of the race shall be by H1, and overseen by the Chief Referee for H1

C. BID AND SELECTION OF SITE

The selection of the location and dates of all Gold Cup races shall rest exclusively with the H1 Board of Directors.

D. RULE CHANGES

If deemed desirable, the terms of this agreement may be modified by H1.

E. GOLD CUP TROPHY PRESENTATION

1. After the finish of a match for the cup, the SITE shall have the cup suitably engraved with the

names of the winning boat, the owner, and the driver. The presentation after the race and the physical handling and custody of the Gold Cup shall be in conformity with APBA rules. The cup shall not pass into the custody of anyone other than a designated representative of APBA or the SITE.

F. GOLD CUP RULES OF RACING

1. Testing and Time Trials
   (a). Testing and Time Trial period lengths and schedule shall be agreed upon jointly by H1 Unlimited and the Race Committee prior to approval of the sanction and communicated to all participants.
   (b). Time Trials shall consist of three (3) continuously run laps over the official certified course, with a required minimum average speed for any two consecutive laps of 130 mph. (The average shall be calculated from the first and second laps run, or the second and third laps run, but not the first and third.)
   (c). If for any reason a boat is unable to complete three (3) consecutive and continuously run laps and at the required average speed, it shall be allowed to attempt additional trials. If at the end of the time trial period a boat has failed to complete three (3) consecutive and continuous laps, but has completed two (2) continuous laps at or above the minimum speed, the boat shall be qualified.
2. What Constitutes a Race
   a) The contest shall be scheduled as a two-day regatta, and shall consist of four qualification heats and one final heat.
      (i) Each qualification heat shall consist of four (4) laps.
      (ii) The final heat shall consist of five (5) laps.
   b) All heats of the qualification sections must be declared completed before the race is declared a contest.
   c) If sufficient heats have been completed so that a contest may be declared on the expiration of the sanction, then there shall be no extension of the sanction, and the race shall be declared a contest at the end of the time specified for the sanction.
   d) The winner of the final heat shall be declared the winner of the Gold Cup race.
   e) Unless specifically covered under the Gold Cup Racing Rules, the currently H1 Rules and Regulations shall be used.
3. Insurance Requirements
   a) The Gold Cup race shall carry APBA regatta insurance in the form of such coverage to be approved by the Chairman of H1 in accordance with the existing APBA insurance standards.

APPENDIX A
GLOSSARY OF TERMS

As contained herein, the following words, phrases and descriptive matter shall be considered as being defined thus:

Afterplane: 1) the bottom surface aft of the break, normally flat and parallel to the water surface; 2) the entire main hull aft of the sponsons; the "fuselage."

Air Dam: an aerodynamic device or spoiler in the tunnel under the bow or leading edge of a three-point hydroplane; typically a flat strip set on edge laterally (crosswise), it creates turbulence thus reducing lift.

Air Trap: 1) the aft ward continuation of the inside vertical "walls" of the sponsons, forming tunnel sides and channeling high-pressure air forced underneath by the boat's shape and forward motion; 2) the inside vertical "wall" of sponson and air trap from bow to stern; the tunnel side.

Airfoil: The cross-sectional profile of a wing.

Angle of Attack: 1) hydrodynamically, the designed angle between the planing surface of the sponson and the surface of the water, measured fore and aft; 2) aerodynamically, the angle between the chord line of a hydroplane's wing and the apparent wind.

Angle of Incidence: the designed angle between the chord line of a hydroplane's wing and the water surface; the angle is fixed for ram wings but adjustable for auxiliary devices such as the horizontal stabilizer.

Beam: The maximum width of the hull.

Boat: A racing craft registered under H1 Racing Rules. Also when so identified and properly referred to herein as patrol, rescue, fire, escort, officials, etc., boats.

Break: the transverse juncture where the forward, angled part of a hull bottom meets the afterplane on a three-point hydroplane.

Bustle: a fixed hydrodynamic shape on a chine, which enlarges the area available for buoyancy, especially when the boat is turning.

Cabover: Rear-engine boat, with driver sitting ahead of engine.

Canard: 1) a small, forward-mounted wing, usually between the sponsons and often adjustable for trim, either by pivoting about a lateral axis or by hinged or sliding flaps on the trailing edge; also "foreplane" or "noseplane" in aeronautical terms; 2) a -reverse three-point (actually four-point) hull configuration, a "tricycle," with two sponsons aft and a planing shoe forward.

Canoe: a construction element of modern three-point hydroplanes, including sponson, chines, and air trap full length from bow to stern, molded as one piece.

Chine: the inclined side of hull or sponson; also "non-trip."

Chord line: the imaginary straight line from leading edge to trailing edge of an airfoil, this distance being the "chord."

Competition: Racing against other boats of the Unlimited or other classes.

Competitor: A driver, owner, crew member or other person (other than an H1 Official) who participates competitively in an H1 sanctioned event. Whenever the words competitor, driver, owner, crew member, are used, unless the context indicates otherwise, the term shall be interpreted to include those assigned to or a member of the same racing team.

Contest, Race: An entire racing program completed according to racing rules of H1 Deck: the top or upper surface of hull; decking.

Dihedral: hydrodynamically, the designed angle between the planing surface of the sponson and the surface of the water, measured laterally inside to outside; a negative angle is called anhedral.

Elevators: movable surfaces on the trailing edge of canards or ram wings that direct airflow; also ailerons, flaps, flippers.

Engine Hood: a part of the cowling that covers the engine and engine compartment.

Engine: by rule, an inboard, internal-combustion power plant either reciprocating or gas turbine.

Fence: a small fixed aerodynamic device running fore and aft (chord-wise) on a wing or hull, usually on the upper surface; also "deck fence" or "deck trap," an upward extension of the sponson wall above the deck.

Flaps: see Elevators

Fuel: by rule, "any liquid or gas (other than air) that passes through the intake system and/or reaches the combustion chambers(s) of an engine," including "oil, gasoline, Jet A, alcohol, water, and nitrous oxide."

Heat: A completed racing event that is one part of an entire racing program.

Horizontal Stabilizer: loosely called the "wing," the airfoil-shaped surface mounted horizontally above the transom and usually adjustable for trimming.

Lap: A completed legal circuit of the race course that may be part of a heat, section, qualification or testing lap.

Non-Trip Chine: chine angled or inclined so as not to catch or trip on the water when the boat is turning, often called simply "chine" or "non-trip."

Nose Cowl: the forward-most part of cowling or superstructure, a streamlined fairing; in a rear-engined boat the nose cowl is usually an integral part of the enclosed cockpit structure.

Picklefork: the current three-point hull refinement in which configuration the two sponsons extend forward of the main hull center section.

Pits: That area at a race site where boats are stored, moored, launched, recovered, repaired and maintained in preparation for racing.

Points: Numerical values awarded to boats and drivers based on their order of finish in a heat or sanction, or for qualification.

Propeller: the device with two or (usually) three blades connected to a shaft and turned by the engine, thereby generating thrust from rotation in the water; current unlimited hydroplanes employ a

surface-piercing propeller; also called "prop," wheel," or "screw."

Promoter: Any individual, group or groups of individuals, organization or groups of organizations who are members individually or collectively, of the APBA and who stage, or desire to stage, an Unlimited class boat race.

Prop Shaft: propeller shaft, the rotating shaft that passes through the bottom of the boat, connecting and transmitting power from engine/gearbox to the propeller; generally of Monel or high-strength steel alloy with a diameter of 1-3/4 to 2 inches.

Racing Season: That period of time during a calendar year when sanctioned events may be held under the authority of H1

Ram Wing: term properly given to the main hull center section of a three-point hydroplane, which has an airfoil shape and generates lift by aerodynamics and ground effects; also a secondary or tandem structure of the same sort.

Rudder: an upright blade that may be turned to left or right about a vertical axis, generally mounted on the transom and extending below the waterline to provide the means of turning a boat while underway.

Runner: the part of the sponson bottom that serves as a planing surface, touching the water at the lowest point.

Sanction: Official permission and legal contract to stage an Unlimited hydroplane race under the supervision and authority and with the cooperation and assistance of H1

Section: A completed racing event that is a part of a heat and that is required when the number of boats entered in a race exceeds the number of boats for which a course has been approved. May also be called qualifying sections.

Shaft Log: the fitting in the bottom of the hull through which the prop shaft passes; also called "stuffing box."

Skid Fin: a vertical blade attached to the hull generally aft of the left-hand sponson, extending below the waterline to help keep a boat from sliding in a turn.

Slat: a fixed or adjustable aerodynamic device mounted integrally with or immediately forward of the ram wing to create a "slot" effect along the leading edge; may be a canard.

Slot: a through-deck opening or passage formed by the gap between a slat and the leading edge of the ram wing, altering air flow; sometimes a "deck vent."

Spar: 1) the major, span-wise, structural member of a wing, a means of attaching sponsons or canoes to the main hull; 2) the brace between the sponsons, often covered by a canard airfoil shape.

Spoiler: an aerodynamic device protruding into the airstream and "spoiling" or reducing lift; usually under the bow, such as an air dam, but occasionally topsides, such as a speed brake.

Sponson: the pontoon-like portion of the hull that provides hydrodynamic lift; in the three-point configuration common to current unlimited racing craft, one sponson is forward on each side of the main hull.

Sponsor: Any individual or group of individuals, organization or group of organizations, corporation or group of corporations who contribute money, services, products or other gifts in kind to support the operation and campaign of an Unlimited racing hull.

Strut: 1) a support or brace; 2) specifically the prop-shaft strut, a structural member on the hull bottom near the transom, which carries the rear bearing for the prop shaft.

Stuffing Box: see Shaft Log

Tail Fin: a vertical aerodynamic surface, part of the boat's superstructure near the transom, which aids directional stability; typical current designs employ two tail fins or uprights side by side, perhaps 4 to 6 feet apart and slightly splayed; also "air rudder."

Transom: the vertical structural element or end frame that defines the aft end of the main hull or ("sponson transom") the aft end of the sponson.

Tunnel: 1) the space or channel between the bottom of the hull center section, or main hull, and the sponson inner walls and air traps, in which air flow is directed and compressed by the boat's forward motion, generating a high-pressure air cushion to partially support the weight of the boat; 2) a hull configuration that employs full-length sponsons, a catamaran-like shape.

Uprights or Verticals: a common term for twin tail fins, which usually comprise upright trusses covered by sleeves or fairings and often support a horizontal stabilizer.

Wing: an aerodynamic surface that may generate lift; while the term is informally applied to the horizontal stabilizer, the most important wing on a modern hydroplane is the "ram wing."

APPENDIX B

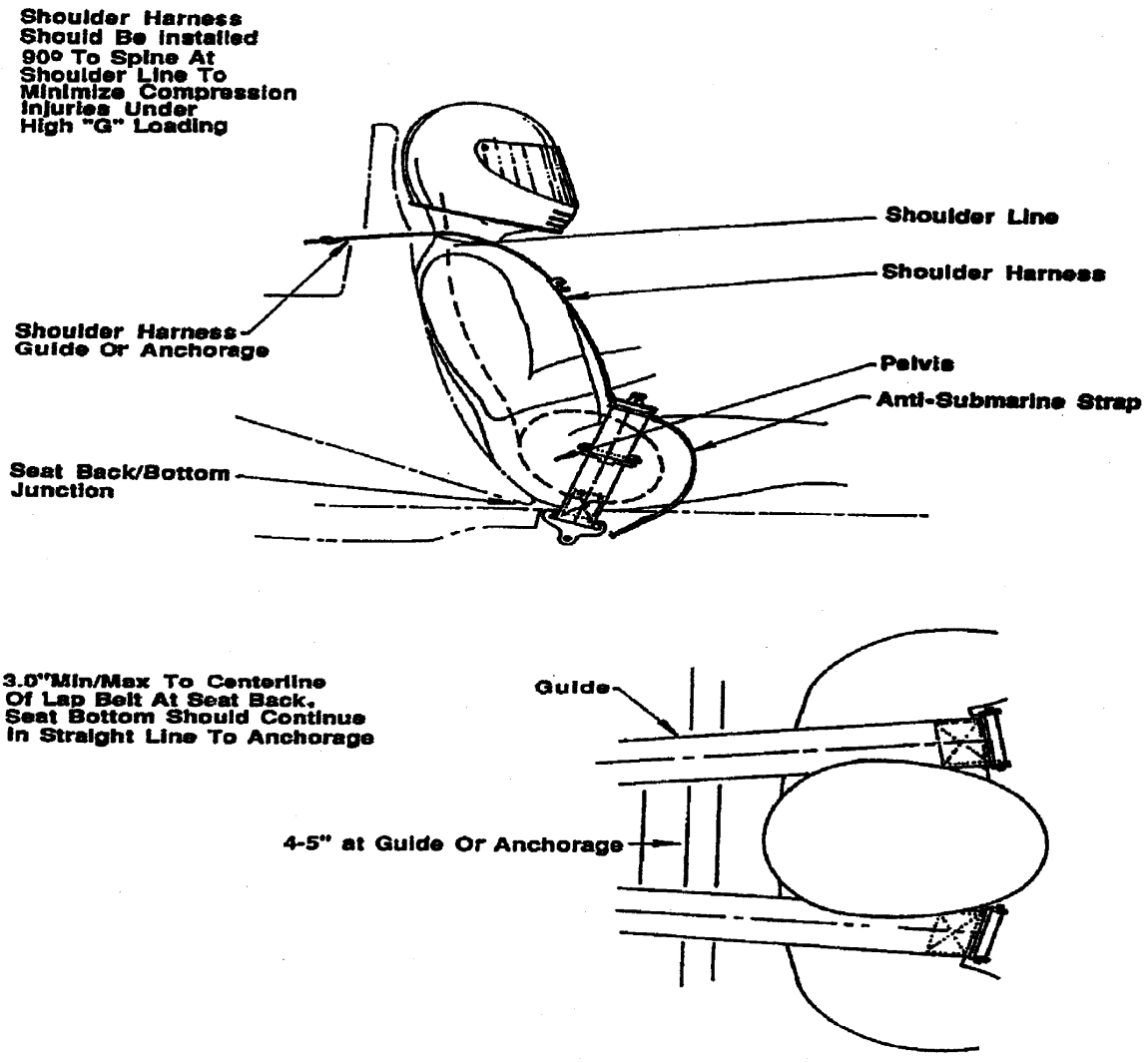


Fig. 1-3 Geometry of Shoulder Harness Restraint System

APPENDIX C

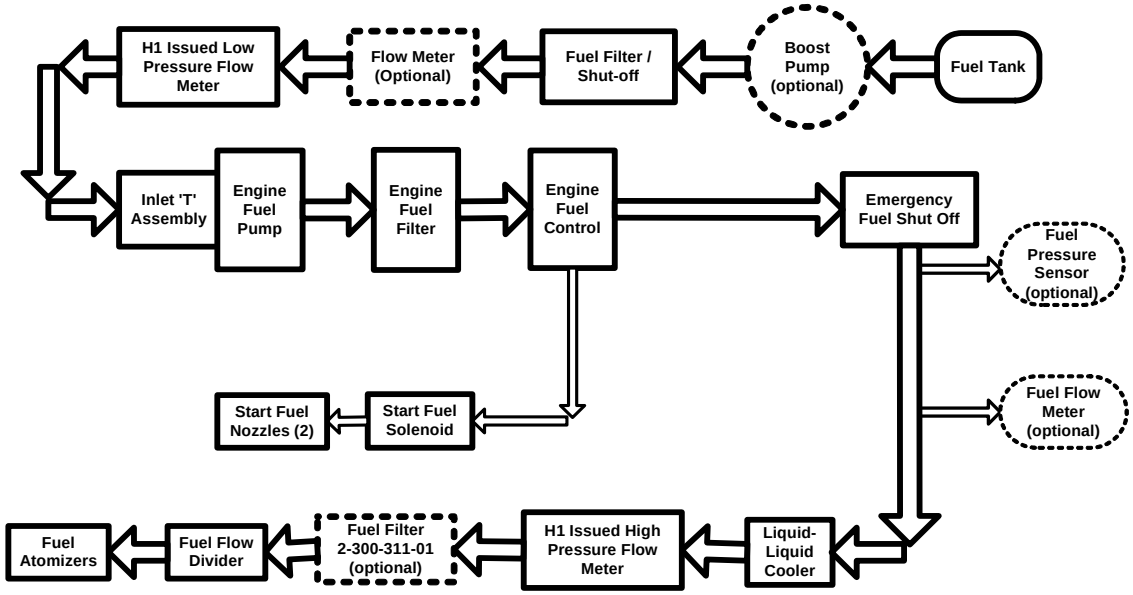


Figure 2-1: Fuel System Schematic using the Fuel Control

The following procedure involves modifying the fuel control that results in the “”Min Flow” screw being used to adjust the fuel flow up and down to meet the Maximum Allowable Fuel Flow specified. The fuel control is fitted with a small spacer in fuel control “Min Flow” adjustment on the throttle valve. The procedure is listed here:

1. Parts needed to install the spacer in the fuel control:

- Spacer:
- Cap throttle valve ‘O’ ring, PN MS9021-020
- Cap throttle valve ‘O’ ring on OD PN MS9021-23
- Screw Position Adjuster ‘O’ ring PN MS9021-009

Note: The ‘O’ rings listed here should be changed when performing this procedure to insure proper sealing of the valve after re-installation.

2. Installation

- Remove the MIN FUEL adjustment assembly as described in the overhaul manual. NOTE: It is very important to screw the position adjuster in as your screw the throttle valve cap out.

- Remove the MIN FUEL adjust screw (item 44) from the housing (item 46).

Note: On some fuel controls the MIN FUEL screw adjustment (item 44) cannot be removed from the housing (Item 46) without further disassembly. In this case, you shall need to cut a notch in the housing to allow removal.

- Insert the spacer between the housing and the end of the position screw adjust.

- Install new ‘O’ rings.

- Assemble the screw adjust

- Install the assembly into the throttle valve housing. Make sure you turn the screw adjust out as you are screwing the throttle valve cap in.

Note: The following information is being provided only to assist teams to obtain the proper fuel flow after spacer installation. Your results may vary from these, so use this information as reference only.

Turn the MIN FUEL adjustment all the way OUT. Then, set the adjust screw 5-6 turns IN from all the way out. This shall provide a starting point for obtaining the correct fuel flow limit of 4.3 GPM. Turn the adjust screw out to increase fuel flow; turn it in to reduce fuel flow. Every 1 turn of the screw shall change the fuel flow approximately 0.08 GPM.

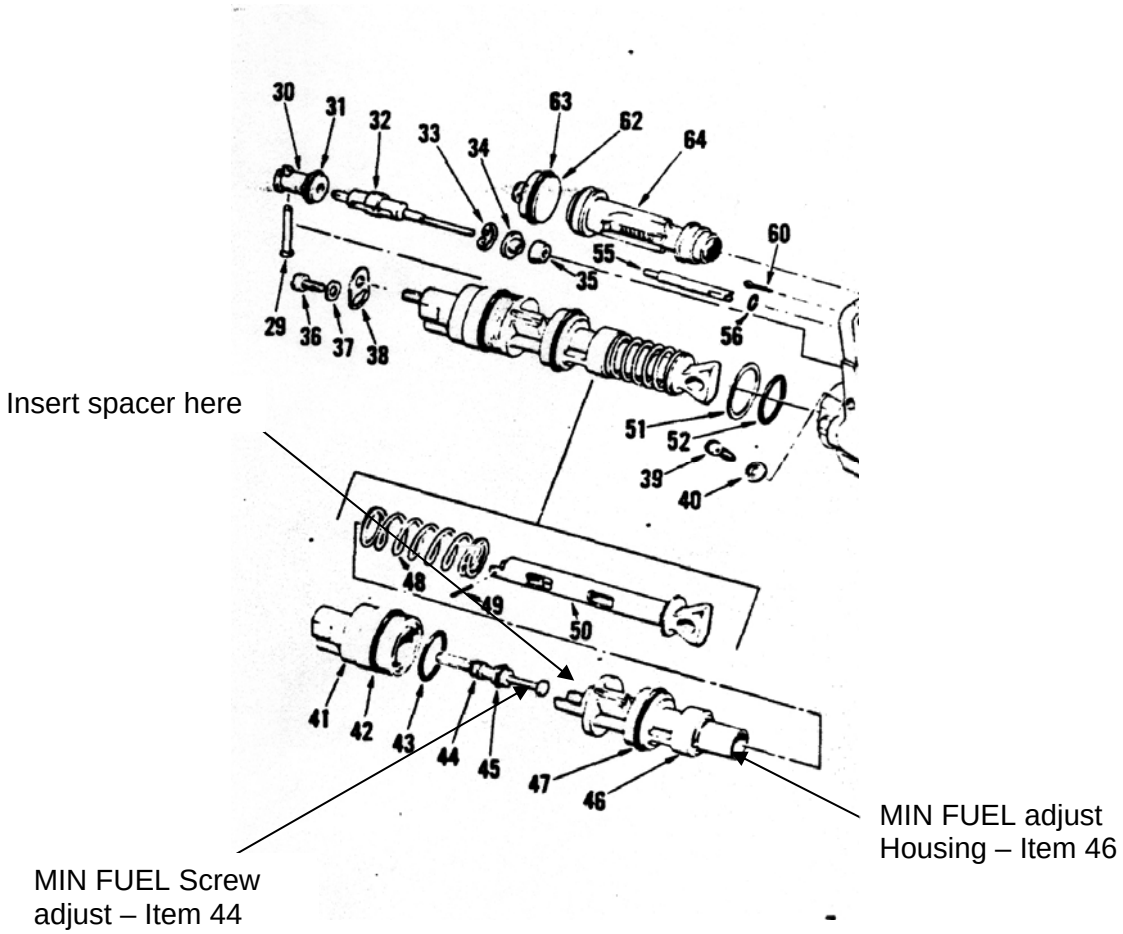


Figure 2-3. MIN FUEL adjustment assembly

APPENDIX D

PENALTY SCHEDULE FOR INFRACTIONS
H1 RACING RULES
2018 SEASON

Penalty	Comment
Level I **$250 FINE**	Accidental infraction. No effect on outcome of heat. Non-progressive*.
Level II **$300 FINE** **150 Points**	Infraction of a rule defined in the Rulebook or stated at Drivers Meeting. ***This is a MINIMUM Progressive* Penalty.***
LEVEL III **1 MINUTE** **$350 FINE**	Flagrant infraction of rule. *May have affected overall overall position during heat*. ***This is an INTERMEDIATE Progressive* Penalty.***
LEVEL IV 1 MINUTE $400.00 FINE **& 200 Points**	Severe or deliberate infraction, violation of safety or written rule or stated at driver's meeting. Example: Running outside course markers. *Racing positions may have been affected.* ***This is a SEVERE Progressive* Penalty.*** Exception: One lap for jumping gun (Rule 4F/1) shall carry no monetary penalty.
LEVEL V **DSQ** **$500.00 FINE** **300 points**	Major Infraction or Rule Book violation. *Infraction affects positions of one or more boats.* Example: Forcing other boat(s) to run outside outer course markers. ***This is a MAXIMUM Progressive* Penalty.***
VI Monetary Fine	A non-progressive penalty that the referee may levy against any H1 participant for a violation of a racing rule.

The above Penalty Schedule was designed to comply with Rule 4, Section R. Enforcement is at the sole discretion of the Chief Referee.

* See Rule 4R, Section 3 for definition of Progressive.

APPENDIX E
ANNUAL INSPECTION FORM
2018 H1 Racing Season

Name/Number: U-

Date:

Inspector:

HULL

1. DECK

__A. Check for looseness from frames _____

__B. Check for loose fiberglass

__C. Check for cracks

__D. Check for loose trim

2. BOTTOM

__A. Check for loose fasteners _____

__B. Check for exposed seams

__C. Check doublers

__D. Check for corrosion

__E. Check location and type of drains

3. NON TRIPS

__A. Check fasteners _____

__B. Check for loose fiberglass

__C. Check for tightness of seams

__D. Check for condition of aluminum

4. RUNNERS

__A. Check fasteners _____

__B. Check condition of aluminum/magnesium

__C. Check for tightness of seams

__D. Check for loose fiberglass

__E. Check for structural integrity of wood

5. FRAMES

__A. Check for integrity of all glue joints _____

__B. Check fasteners

__C. Check for cracks

HORIZONTAL TAIL (WING) ASSEMBLY

1. DECK MOUNTS (UPRIGHT ATTACHMENT POINTS)

__A. Visually check for cracks _____

__B. Check fasteners for tightness

__C. Check all glue joints

2. HULL/TRANSOM MOUNTS (Diagonal Brace Attachment Points)

__A Check for cracks _____

__B. Check fasteners for tightness

__C. Check glue joints

3. UPRIGHTS

__A. Magnaflux or Zyglo (must be initialed by crew chief)* _____
__B. Check for rust _____
__C. Check uniballs _____

4. ADJUSTING RODS

__A. Magnaflux or Zyglo (must be initialed by crew chief)* _____
__B. Check for rust _____
__C. Check rod ends _____

5. DIAGONAL BRACES

__A. Magnaflux or Zyglo (must be initialed by crew chief)* _____
__B. Check for rust _____
__C. Check rod ends _____

COCKPIT

1. MAIN STRUCTURE

__A. Check for main structure & roll cage to Rulebook standards & minimums _____
__B. Check for loose upholstery, exposed areas that may contact drivers head. _____
__C. Check headrest to Rulebook standards and minimums _____
__D. Check seat adequately attached to boat _____
__E. Check for adequate leg clearance (e.g. can driver pull knees up to chest with steering wheel removed.) _____
__F. Check seal/release of bottom rescue hatch _____
__G. Check for Plexiglas window in hatch. (Optional) _____
__H. Check for cockpit sealed from engine compartment _____
__I. Check for secondary emergency air supply _____
__J. Check air bottles inspection sticker, location & mounting _____
__K. Check for installation of radio and current license _____

2. CANOPY

__A. Check for proper material (1/2 inch thick hot formed polycarbonate, Lexan cold formed is not acceptable) _____
__B. Check for securely fastened _____
__C. Check for cracks or breaks _____
__D. If using aircraft canopy, which model _____
__E. Check for opening mechanism, hinge, lift handle, latch per Rule Book standards and minimums _____
__F. Check for cockpit opening with canopy open to Rule Book standards and minimums _____
__G. Check driver's head clearance _____

3. UPHOLSTERY/PADDING

__A. Is upholstery securely attached _____
__B. Check for padding covering sharp edges/protrusions

4. STEERING WHEEL

__A. Check for rust _____
__B. Check for loose cover _____
__C. Check for sharp edges _____
__D. Check for proper attachment - check splines/taper, keyway, key attaching bolts, lock-tited bolts, collar release _____

mechanism w/in 2" of face of hub

5. FIRE EXTINGUISHERS

__A. Check for handles accessible from inside and outside of cockpit, properly marked as per Rulebook _____

__B. Check for bottles securely mounted

__C. Check for cables Pull free and operable. _

__D. Check for bottle weights _

__E. Check cockpit system(Halon 1211 not acceptable in cockpit) _

__F. Verify chemical used in hull/engine and cockpit systems _

6. MIXTURE CONTROL (Piston Aircraft Engine Only)

__A. Check for handles accessible from inside and outside of cockpit _____

__B. Check aft position for off _

__C. Check for protrusions _

__D. Check for cable well attached _

7. THROTTLE

__A. Check for secure attachment _____

__B. Check for smooth and free pedal/cable action _

__C. Check that spring returns throttle to off position (a minimum of 2 springs required: 1 on pedal, and 1 on carb or fuel control) _____

__D. Check for no toe straps/coverings on pedals _

__E. Check cable well secured (Quick release ball type not recommended) _

8. LEFT FOOT BRACE

__A. Check structure, mounting, and compliance with specifications _____

__B. If left foot pedal operates control surface or other mechanism, check for spring back to "fail safe" position, no toe straps _____

9. DASHBOARD

__A. Check adequate drives leg clearance _____

__B. Padding on underside of dash _

__C. Check for secure attachment _

__D. Check for secure sub structure _

10. SHUT-OFF DEVICES/SYSTEM

__A. Check that systems may be activated from outside cockpit. properly marked as described in Rulebook _____

__B. Check that system activation shall ground magnetos (piston engines), and cut electrical power to all systems _____

__C. Turbine engines to have emergency mechanical fuel shut-off device, independent of the fuel control _____

11. MASTER ELECTRICAL SWITCH (MANDATORY)

__A. Check for easy access for driver _____

12. MAGNETO OR ENGINE MASTER SWITCH (PISTON ENGINES)

__A. Check for secure mounting _____

__B. Check for both magnetos grounded when off _

__C. Check for accessibility from outside of cockpit _

13. CIRCUIT BREADERS (OPTIONAL. RECOMMENDED)

__A. Examples: Instruments 15 Amp, Fuel pump 20 Amp. Water/Alcohol pump 20 Amp _____

14. SWITCHES

__A. Check for free action _____

__B. Check for secure attachment _

15. WIRING

__A. Check for corrosion _____

__B. Check for tight wire lugs _

__C. Check for chafed or cut wires _

__D. Check for wire bundles tied off _

16. DRIVER RESTRAINT SYSTEM

__A. Check straps and latch on Rulebook approved list (e.g. LUKE Daytona DT6, Simpson) _____

__B. Check straps for wear or fraying and date stamped _

__C. Check fever latch for rust, smooth operation _

__D. Check for adequate attachment to hull _

ENGINE COMPARTMENT

1. WIRING

__A. Check for corrosion/damage _____

__B. Check for tight wire lugs _____

__C. Check for chafed or cut wires _____

__D. Check for wire bundles tied off _____

__E. Check separate wiring for start fuel solenoid __

2. PLUMBING

__A. Check for frayed hoses _____

__B. Check for corrosion on ends (pull test) __

__C. Check for loose fittings and ends __

__D. Check for hose bundles tied off __

__E. Check mounting of fuel flow control device __

3. ENGINE STRINGER/INTERNAL STRUCTURE

__A. Check for secure engine & gearbox attachments, wear or elongating of bolt holes _____

__B. Check for internal structural damage due to heat, oil, impact __

__C. Check engine bailers/vent system meets Rule Book __

4. COWLING

__A. Check attachment for removable cowling _____

__B. Check for cracks and breaks in glass _____

__C. Check for strobe light installed __

STEERING SYSTEM

1. RUDDER BRACKET

__A. Check for removal of all paints & coatings, cleaned, mangnaflux or zyglo (must be initialed by crew chief) _____

__B. Check bolt holes for elongation, replace bottom bolts (grade 8-1/2" minimum) _____

__C. Check bearings/bushings for clearance and freedom of movement (recommended replacing bearings with bushings) _____

2. RUDDER BRACKET SUPPORT STRUCTURE

__A. Check for transom well attached to stringers, air traps, bottom _____

__B. Check inner structure ties together the transom, bottom, stringers _____

__C. Check all glue joints intact __

__D. Check for inserts at all fasteners (honeycomb boats) __

3. RUDDER

__A. Check rudder has been removed from boat _____

__B. Check all rudders have numbers __

__C. Check rudder has been magnafluxed (certified with papers)* __

__D. Check for minimum thickness at and above waterline __

__E. Check for filleting at base of post __

__F. Check for shot peening (recommended) __

__G. Check retaining nut or cap. Check for new bearhug nut and lock ring. Check all bolts safety wired _____

__H. Check key way and key fit __

__I. Check fittings and tubes for cracks __

__J. Check hoses and fittings for corrosion and fraying __

4. PITMAN ARM

__A. Check magnaflux or zyglo (must be initialed by crew chief)* _____

__B. Check key way and key for fit __

__C. Check bore for fit on rudder __

__D. Check/inspect threads __

5. ROD ENDS

__A. Check zyglo (or new) (must be initialed by crew chief)* _____

__B. Check for loose ball __

__C. Check for retainer washer under bolt head __

__D. Check for minimum specification type on rod ends (40,000 lbs) __

__E. Check for NO zirk fittings in rod ends (zirk fittings not allowed) __

__F. Check nuts and bolts cotter keyed, or threaded into push rod with jam nut _____

__G. Check thread engagement minimum (1-1/2 X thread diameter) __

6. PUSH PULL RODS

__A. Check for rust inside and outside of tube _____

__B. Check threads for fit and rust __

__C. Check magnafluxed or zyglo'd (must be initialed by crew chief)* __

__D. Check for NO brazed fittings or joints __

__E. Check for minimum wall thickness : 4130 1 1/2" O.D. tube – .063" wall 4130 1" O.D. tube - .125" wall _____

7. CABLE QUADRANT/SPROCKET (CABLE STEERING)

__A. Check mangafluxed or zyglo'd (must be initialed by crew chief)* * __

__B. Check bearings/bushings for free play and wear __

__C. Check push-pull rod bolt hole for elongation and wear __

__D. Check cable attachments __

8.CABLES

__A. Check minimum cable type (aircraft type, 3/16 Diameter, 7 X 19 stainless) _____

__B. Check for fraying, kinks, clearances in hull holes __

__C. Check ends - swages and clamps __

__D. Check/verify each cable pull tested (certified with papers) __

__E. Check/inspect ALL pulleys (must be initialed by crew chief)* * __

9. CABLE PULLEYS

__A. Check for excessive wear, cracks, corrosion _____

__B. Check bearings __

__C. Check fairleads and cable guides __

__D. Check mounting brackets __

10. CABLE ADJUSTERS

__A. Check for safety wire per FAA specs _____

__B. Check for clearances where pass through frames/stringers __

11. SKID FIN BRACKETS

__A. Check for removal of all brackets from hull _____

__B. Check for removal of all paint and coatings for magnaflux or zyglo (certified with papers) _____

__ C. Check bolt holes for elongation, stress __

12. SKID FIN BRACKET SUPPORT STRUCTURE

__A. Check for inspection deck hatch above internal support structure. _____

__B. Check for internal structure attached through to engine stringers. __

__C. Check all glue joints intact __

__D. Check for inserts at all fasteners (honeycomb boats) __

13. SKID FIN

__A. Check fin has been removed from boat _____

__B. Check all skid fins & hardware have serial numbers __

__C. Check skid fins have been magnafluxed (certified with papers) __

__D. Check for minimum thickness at waterline and above __

__E. Check tie rod attach points for rust, cracks, etc. __

__F. Check tie rods for rust and cracks, two (2) rods minimum top & 3 Rods minimum bottom. Check magnafluxed or zyglo'd (certified with papers) _____

__G. Check tie rod ends for rust, loose ball, magnaflux, zyglo or new (certified with papers) _____

__H. Check for curvature per Rule 11 E/3 _____

LIFTING SLING

1. TEST/CERTIFICATION

__A. Check/Inspect components for rust, wear, cracks, etc.; nylon for wear, fraying. No aluminum collector rings. _____

__B. Check/Verify Date of Mfg, rating of each leg (6000 Ibs. min.), collector ring to 4 times boat weight, _____

CONTAINMENT BLANKET (TURBINE POWERED BOATS)

1.DESIGN/MANUFACTURE
__A. Check/inspect design and condition per Rulebook minimums _____
__B. Check for proper location _
_____

DATA RECORDING SYSTEM

__A. Check recorder location for access and security _____
__B. Check N2 sensor mount pads on gearboxes _
__C. Check/inspect magnets _
__D. Check flow meter location and mount _

HEAD AND NECK RESTRAINT

1. INSPECTION/CONDITION
__A. Check for approved type, general condition _____

HELMET/AIR MASK

__A. Check certification, manufacturer _____
__B. Check air mask, straps, attachment clips _

RADIOS

1. FCC LICENSE
__A. Verify License _____
__B. Verify Expiration Date _
__C. List Frequencies: _

Crew Chief Date

Chief Inspector Date

NON-DISCLOSURE AGREEMENT
The Chief Referee, his representatives, and all inspectors shall not disclose to any individual or race team any information declared to be proprietary by any race team. This shall apply to information obtained in the performance of duties of the office of Chief Referee or his representatives. This non-disclosure agreement is binding until the termination of said referees, his representatives or inspectors association with H1. This non-disclosure policy shall not apply to information regarding anything used to circumvent Unlimited Class Rules and Regulations.

Chief Referee Date

APPENDIX F

2018 H1 ANNUAL INSPECTION SUMMARY

Name/Number/ U- Date

Inspector

Certification Dates:

Steering Cables Lifting Slings

LiOpen.21415.02497.18667651-1Open.21415.02497.18667651-1Open.21415.02497.18667651-1Open.21415.02497.16928806-1Open.21415.02497.16928806-1

Air Bottle VIP's

Seat Belts

Rudders:

Skid Fins, Rods, Ends & Brackets Certification Papers:

Containment Blankets:

Length Width After plane Weight

***Crew Chief must initial to affirm Magnaflux or Zyglo inspection on each of the following components:**

Wing Uprights Wing Adjusting Rods

Wing Diagonal Braces *Rudder Bracket

*Rudder Pitman Arm *Steering Push-Pull Rods

*Steering Push-Pull Rod Ends *Steering Quadrant

*Steering Cable Pull Test FCC License Number _____

License Expiration Date

FCC Licensed Frequencies

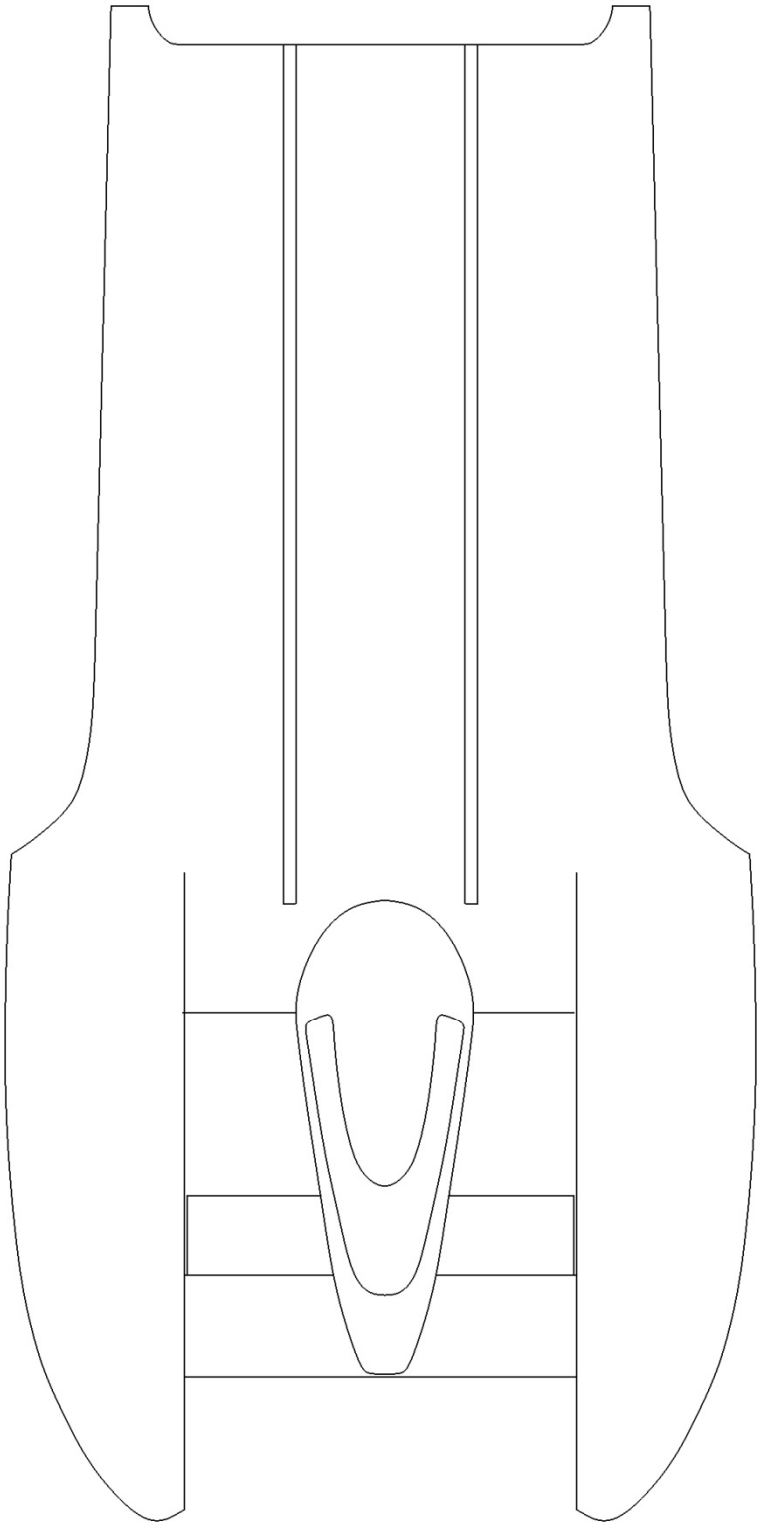
(Please give this sheet to inspector at first race entered.)

Notes:

APPENDIX F

2018 H1 ANNUAL INSPECTION SUMMARY Hull # U-_____

Please indicate on this drawing the locations of all Fuel Bladders, tanks of any kind and battery mounting locations.



APPENDIX G

Starting Line example