



2017 RULE BOOK

The goals of the ESU club are to replicate the look of real unlimited hydroplane racing and enjoy competition on the water. Boats are 1/7th scale replicas of the real boats that have raced on the unlimited circuit. The club emphasizes scale accuracy and quality workmanship along with good sportsmanship on the water. As with the real boats, the races will be run counter-clockwise on the course.

The rulebook is considered to be complete as written – anything not specifically covered by a section of the rulebook is not allowed.

There are three classes within the club. The ESU Master Hull Roster lists the approved class for all boats.

- The Vintage Class will be all boats with a round nose, typical of the design of boats in the 50's and 60's.
- The Classic Class will be all picklefork boats that ran with piston power, typical of the boats in the 70's and 80's.
- The Modern Class will be all boats that incorporate a picklefork configuration running with turbine power, typical of most new boats starting in the 90's and running to the present.

CLUB MEMBERSHIP

- Cost of membership will be \$25 annually, with membership running from January to December of a calendar year. Only registered club members will be allowed to register boats and to drive boats at club events. All ESU memberships are subject to approval by the ESU Contest Board and may be revoked by a

majority vote of the board

- Boat registration will be \$10 per hull. Only registered boats are allowed to race at club events. Registration will include identifying the frequency to be used for that boat.
- The entry fee for each race will be \$10 per boat per race.
- Fees collected by the club will be used to provide the following for the membership:

Securing Race Course Sites Web Hosting Media Promotions

Banquets Awards Equipment and Maintenance Club Supplies

- There will be no paid positions in the club.

BOAT REGISTRATION RULES

- Members are allowed four hull registrations at any one time. Registration can be made at any time by mail or in person to the club's Registrar/Treasurer. Boat registration is on a first-come first-served basis. Registrations will be active from January 1 to December 31 of a calendar year. All registrations expire on December 31, regardless of the initial date of registration. Any member giving up a registration may reregister said boat if it has not been registered by another person after the lottery draw. However, payment of applicable fees will still be required.
- The ESU Contest Board Registrar shall maintain an updated Master Hull Roster of all registered boats. This list shall be available for viewing at each membership meeting and on the club website.
- All boats must race in at least three sanctioned races during the racing season, completing at least one heat in each of those three races to maintain its registration. Any boat not meeting this requirement will become unregistered.
- The board retains the right to deny multiple registrations to an individual or group of individuals when it feels that granting such registrations is not in the best interest of ESU. An ESU "Intent to Build Form", along with a photograph of the real boat, must be submitted with the registration request.
- In the event a registered boat does not complete its three mandatory finishes during the season, the owner may pay a \$30 fee to the Registrar to keep the registration for the following year. This is allowed one time only and is in addition to the annual \$10 boat registration fee.
- All boats not re-registered by January 31 of the following year shall be considered unregistered and available for registration after notification to the membership by the Registrar of all boats whose registrations have lapsed. Registration requests for these boats shall be submitted to the registrar with a \$10 non-refundable fee prior to the February members meeting, at which time a drawing will be held to award the registrations. The fee collected is either the registration fee for the successful applicant or a

donation to the club for the remainder.

- Visitors or members of another club will have to become an ESU member to race, by paying the \$20 membership fee, the \$10 per boat registration fee, the \$10 per boat race fee, and having the boat pass technical and scale club inspections. Duplicate boats could race for one calendar year, after which time the newest registrant would have to resolve the issue during the following off-season by making necessary changes to his boat to eliminate the duplicity. If duplicate boats attend the same race, they will be placed in different heats up to the consolation or final heat, where all qualified boats would be able to run.
- A racing season is defined as all sanctioned events occurring in a calendar year (January 1 through December 31).

BOAT APPEARANCE AND DESIGN

- Boats are to be built to resemble the original boat in appearance as closely as possible. Boats are to race in their most recognizable form, including wings, engine or cowling, and graphics. A photograph

of the real boat must be presented upon request to confirm the appearance. All boats shall be inspected prior to their first race of any calendar year to confirm compliance with the rules. In addition, all boats will be subject to inspection by the contest board at all times during the season.

- If a Club Member desires to build and race a boat in any configuration other than "their most recognizable form" a variance will be required. The Member shall submit in writing the brief history of the boat in question including pictures and a description of why they want to race that particular boat to the Scale Inspector. The Scale Inspector and Technical Inspector will review the information and make a ruling within two weeks of the submission. If the request is turned down then the member may appeal to the ESU Contest Board, which shall make the final ruling.

- The following items are to be included with the boat at the time it is entered into competition:

Scale driver, complete from the waist up with proper helmet and life jacket, in open cockpit boats and visible in canopy boats.

Windshield.

Steering wheel and dashboard with instruments.

Air scoops, vents, exhaust pipes and/or manifolds, and flashpans.

Bow spoiler; accurate wet sponson detail; open dummy motor or full cowl with exhaust stacks extending through the cowl (not just glued to outside of cowl).

All boats are encouraged to have two orange stripes on the underside of the hull.

Boats will be built to 1/7 scale - a scale of 1" (model) equals 7" (actual unlimited) - as recorded in the NAMBA Master Hull Roster. Dimensional tolerance of plus or minus 5% is allowed except overall length shall be plus or minus one inch (1") Scale paint and appearance is to be verified by photograph and judged with the model in the water at a distance of ten feet.

The underwater hull (bottom, sponsons and the side and sponson non-trips) shall resemble the real boat as closely as possible.

No part of a rudder assembly shall extend more than 3" beyond the transom.

Air dams, if installed, must be below the deck line and not extend beyond the bow.

Sponsons shall have the same dihedral angle on the primary running surface unless otherwise configured on the real boat. Anhedral left sponsons and modern style (Jones, Lucero, etc.) sponsons (inside and/or outside secondary riding surfaces and compound non-trips) are not allowed on boats running in the vintage class. The sponson runners can be modified in both dihedral angle and angle of attack. Steps on the runners are allowed. If ride pads are used, they must be the same dihedral angle as the primary runner.

- The boat must be complete at the start of a race, with all scale and performance items in position and operational. Any boat not complete in appearance shall apply to the race CD for a variance before starting any subsequent heats. No variance will be granted for the first section or heat of a race. The penalty for failure to receive a variance shall be heat disqualifications, unless the damage occurred in pre-race testing.

- Upon completion of a heat, sixth place points will be awarded to a boat which loses any part during the running of a heat. Exceptions are granted if loss is caused by collision or roostertail of another boat (cutting off, chopping, etc.) If the officials cannot determine which boat is at fault, no penalty will be assessed. Officials must announce to the drivers the status (penalized or not) of a boat that loses a part within one lap after the loss occurs. This penalty affects only the points awarded, if any, to the boat(s) in question, but not to their heat placement. Nor does it affect the placement of, and points awarded to, other boats in the heat, except for a consolation and final heat, in which the offending boat would be awarded sixth place points and last place finishing position of all boats left running, with those running moving up in the final finish order.
- Damaged boats must be repaired within four weeks of the date of the damage in order to participate in the next scheduled racing event.
- All boats must have a stand with a prop guard.

POWER AND DRIVE TRAIN – VINTAGE CLASS

- The maximum power source allowed shall be 6500 mAh 45C Lithium Polymer (LiPo) batteries with a manufacturer's discharge rate of 20C or greater, in 8S2P configuration.
- All motors are to be left Stock as supplied from the manufacturer and available for sale to the general public. . No modifications are allowed to the motor except for providing a flat spot on the shaft and replacing connectors. Bearings may be replaced at any time.
- The approved motors are:
 - Scorpion 4035-800 850kv (brushless outrunner)
 - Turnigy SK3 Fandrive – 3994- 850kv (120mm EDF) (brushless inrunner)
 - 1527 Neu 1.5y 850kv (brushless inrunner)
- Any shaft with a minimum diameter of 3/16" may be used.
- Skid fins will be mounted to the inside of the left sponson and are not to extend beyond the back of the sponson. The size is limited to a maximum of 3" wide by 2" deep and must fit in a 2-inch x 3-inch box upon inspection.
- No gearbox of any configuration is allowed.
- Only single, stock 57mm Graupner Series 2317 propellers, unmodified, are allowed, and a portion of the propeller as noted in the technical review specifications must be under the transom. The drive dog is defined as not a part of the propeller. Double rudders are not allowed, unless present on the real unlimited (verified by photograph).

CLASSIC AND MODERN CLASS SPECIFIC RULES

All rules listed above apply to the Modern Class boats except as noted below:

- Sponson design shall be up to the builder as long as it does not change the outline shape (profile as viewed from the top and/or side) of the hull.
- Skid/turn fins shall be similar in appearance and location to the full size boat (mounted to the back of the sponson). The size, shape and precise location shall be determined at the discretion of the owner. No part of the skid fin assembly shall extend more than 5" beyond the sponson transom. No hookshaped skid fins are allowed.
- Stock 57mm, 63mm Graupner Series 2317(plastic) propellers, or Stock 57mm CNC 5714R (aluminum) propellers from RC Boat Blitz, unmodified, are allowed.

CONTEST DIRECTOR RESPONSIBILITIES

The Contest Director (CD) shall be responsible for all planning and preparation connected with the event he is sponsoring. The CD is the primary official of the regatta. The CD is responsible for the smooth, efficient and fair progression of the regatta. The CD shall make certain that the regatta officials perform their duties. Specific duties are as follows:

- Selection of race name and format
- Determination of starting time.
- Procurement of race officials and workers including Referees, Course Judges, timers (when needed), one or more Pit Bosses and a Drivers Representative.
- Arrange for delivery of all equipment necessary to conduct the race including buoys, scaffolding, PA system, timing equipment, and recovery craft.
- Notification of all registered ESU owners of the race particulars at least two weeks prior to race day.
- Acquisition of trophies, if desired to augment the club-supplied awards package.
- Engraving of perpetual trophies listing the winning boat and driver in each class.
- Set up and tear down of race equipment.
- Collect race fees and submit all proceeds to the Club Treasurer.
- Furnish race results and race narrative to the club Statistician and Webmaster.
- In case of fewer than three boats in a heat, the CD will make a decision concerning the running of the heat.

RACE POINTS

Points will be awarded per position of finish in a heat on the following basis:

Preliminary/Final Heats 1st Connie 2nd Connie 1st = 400 points 200 points 100 points 2nd = 300 points 150 points 75 points 3rd = 225 points 113 points 56 points 4th = 169 points 85 points 42 points 5th = 127 points 64 points 32 points 6th = 95 points 48 points 24 points 7th = 71 points 36 points 18 points • Season points do not transfer except to an identical replacement hull.

- The total points scored by a driver and any one boat during a sanctioned regatta shall be added to the season driver points standings. If a driver pilots two or more different boats in a single regatta, he must choose, before the first heat, the boat from which he will receive driver points.
- In the case of ties, the highest accumulated season points during the current racing season between the boats involved will determine which boat will advance. For the first race of the year, the previous season's total high points for the boats involved will be used.
- All sanctioned races count towards season points. Season high point trophies for boats and drivers shall be awarded based on the top ten finishes of the racing season.
- Substitute drivers are allowed to compete, with notification given prior to the one-minute gun. If a substitute driver is named, the boat will receive season points, but the substitute driver will not accumulate season points.
- The number of heats in a section will be determined prior to the section draw. The draw will place boats across the heats, rather than filling one heat at a time. A driver with more than one boat entered in a race will have his second boat placed automatically into the second following heat, where possible, within that section during the preliminary races. If both boats qualify for the consolation or final heats, a

substitute driver can be named for one of the boats, or one of the boats can be withdrawn, at the boat owner's discretion.

Race formats are based on the number of entrants as follows:

- Zero-to-2 boats will not constitute a legal race – points earned will not count in the season totals for boat or driver.
- 3-to-6 boats will all race in together in each heat, with the winner based on the winner-take-all final heat.
- Seven or more boats will run in multiple heats in each section, with the maximum number of boats not to exceed six in any preliminary heat. The final will be the six boats with the highest accumulated points for the day, plus the winner of the First Consolation race running as a trailer. The second place boat in the consolation race will be the alternate to the final. One consolation heat will be run when less than 15 boats are entered in a race, and two consolation heats will be run with 15 or more boats if at least three boats are able to run in the second consolation heat. No alternate will be assigned to the Second Consolation heat. The winner of the Second Consolation heat will be the trailer in the first consolation heat. Modern and Vintage classes are treated separately.
- The trailer boat will use the exit buoy of turn four as its start line.

RACE RULES:

- The race day starts with the arrival of the trailer prior to set-up, and concludes with the awards ceremony following final clean-up. Participants are expected to be in attendance for the entire day, and agree to not leave early except when excused by the race CD. Failure to commit to the full day without excuse will result in the forfeiture of points earned for that event as they apply to season high point totals.

- The official judges for each heat will consist of a referee and two turn judges. The referee is the sole authority for the conduct of the heat, with the turn judges assisting the referee with their calls. The referee and judges will be designated as the entries from the previous heat, or someone assigned by one of those individuals to take his/her place. A heat will not start until the three judges are in place to observe the heat.
- Official calls are final.
- All heats will be five laps run in a counterclockwise direction.
- A five-minute audio countdown clock will be used to start each heat. The start of the race is at the sound of the horn.
- A boat must be in the water and commence running at the 30-second mark on the countdown, and may not be touched inside the thirty second mark. A boat not meeting these requirements will be disqualified from that heat. Once running, a

boat must remain in constant forward motion. Any boats stopping on the course or in the infield after the 30-second mark and before the start shall be assessed a one lap penalty.

- The “Mill Start” will be used in which all boats must fully circle the right and left hand turns (in that order) before being allowed to enter the infield. Cutting directly across the course from the pit area is a one lap penalty. The infield can be entered prior to the start only between the exit buoy of the left turn and the entry buoy to the right turn. Entry into the infield at any other point is a one lap penalty. Boats entering the race course from the infield must do so only onto the back stretch between the exit buoy of the right turn and the entry buoy to the left hand turn. Entry onto the race course from the infield at any other location is a one lap penalty. Boats entering the course from the infield must yield to those on the course. Failure to do so is a one lap penalty. If a buoy is missed during the mill, a penalty lap can be avoided by once again fully circling the right and left turn in order.
- Jumping the gun results in a one-lap penalty.
- A Score Up buoy shall be used at a location on the course that is easily viewed by the drivers and officials as a pre-start point. The location will be established at the Drivers Meeting. During the mill start, the score-up buoy cannot be passed prior to the set time. The time shall be set in five-second increments. Boats violating the score-up line shall be assessed a one lap penalty.
- A one-lap penalty shall be assessed if a boat cuts inside a course marker or when more than 50% of a boat jumps inside /over a buoy. Disqualification will occur upon the third occurrence in any heat. No penalty shall be assessed for a boat that touches a buoy on the outside causing no damage or displacement. A \$10 fine payable to ESU shall be assessed for damaging or displacing a buoy during any heat.
- All boats must maintain a straight line from the exit pin to the starting line at the beginning of a heat. Lane changing at this point will result in a one-lap penalty for the offending boat.
- Circling the infield after the start of the race will result in a one-lap penalty. Boats having completed the required number of laps for a finish shall immediately enter the infield from the backstretch and

park. Parked boats must remain parked until all boats have finished. Failure to park will result in disqualification from the heat.

- All Race Rules and Driving Rules apply at all times on race day. Races will start at the time established by the Contest Director, with a drivers meeting held 30 minutes prior to the announced start. All boats and drivers must be registered prior to the driver's meeting. Drivers must be present at the driver's meeting to be drawn into the first flight of heats. Drivers arriving after the first flight is drawn may participate, starting with the second flight, after paying a \$10 later registration fee per boat, in addition to other race-day fees.
- Drivers shall have a spotter at all times when their boat is on the course. The spotter will inform the driver of race conditions, count laps, and assist the judges in calling out "dead boat" status. This provision applies to pre-race testing also to conform to NAMBA Safety Rules. Except for rookies, one spotter may assist up to two drivers. As a courtesy to others, drivers and spotters should remain on the scaffolding until all boats have completed their race.

RADIO RULES:

- Spektrum radios do not require a pin. No other transmitter is allowed to be turned on at any time without the correct frequency pin attached to the antenna. The purpose of this rule is to prevent more than one transmitter on the same frequency being active at the same time. Violation of this rule and failure to turn in the frequency pin at the completion of a heat of competition (when required by race officials) or at the end of the day's racing shall result in a fine of \$20 for each occurrence, and race disqualification if the infraction results in damage to another boat.

DEAD BOAT RULES

- The definition of a dead boat is "a boat on the course that is not moving, as called by a judge".
- Spotters must alert their driver if a boat spins out or stops on the racecourse. The call should state "Dead (or slow) boat – and location" (right turn, left turn, back stretch or front stretch). Heat judges will make an official "dead boat" call.
- If two boats are stuck together and called dead, they must remain dead until the heat is complete. All boats will be given five minutes to finish a heat, following the finish of the first boat.
- Striking a called dead boat at any time during the race day will result in disqualification for the striking boat and the driver for the remainder of the race. The race Referee at his discretion may reduce the penalty to disqualification from the heat if conditions warrant. (E.g. - Inadvertent action, not enough time to respond, difficult to see, minor damage to struck boat, etc). If the offence occurs during the final heats of the day (consolations or final heat) the driver and offending boat will be disqualified for that day, and lose all points earned prior to the penalty.

COLLISION RULES

- The definition of a collision is "contact between two boats any time two boats are on the water at the same time".

- A boat that strikes another boat will be assessed a one-lap penalty. A boat that strikes another boat, causing it to not finish the heat, will be disqualified from that heat. Penalties, if any, for incidental contact will be called at the discretion of the referee.
- If a boat is taken out of a heat in a collision or as a result of a penalty on another boat, the offended boat will be awarded 169 points as compensation.
- If a boat is off plane, the driver must yield to other boats before trying to re-enter the racecourse, so as to not interfere with the progress of other boats. Interference will result in a one-lap penalty.
- A driver may stop a heat at any time for any reason, but will not be allowed to participate in a re-start of that heat.

CONSOLATION AND FINAL HEAT RULES

- A trailer boat for the final heat is determined by a consolation heat. After the top six boats are determined by total points for the day, the next six boats are eligible for the first consolation heat. If any of the six boats are not able to compete, the boat with the next highest point total can enter the heat. If 15 or more boats are entered in the race, a second consolation heat will be held, as long as at least three boats are able to start. All heats will be filled to six boats if there are enough qualified entries.
- In case frequency conflict exists between two or more boats eligible for the consolation or final heats, preference on the disputed frequency shall go to the boat that is highest in the preliminary heat point standings. If the frequency conflict cannot be resolved (by frequency change, etc.) the lower boat in the point standings will be withdrawn from the consolation or final heat. In the case that a boat is withdrawn due to frequency conflict, the boat that is highest in the preliminary heat point standings of the remaining boats shall advance into the consolation or final heat.
- Consolation heats are run for partial points per the table in the Race Points section. The winner of a consolation heat may forfeit the points earned to enter as a trailer in the next heat. If a driver chooses to decline advancing to keep the points, the option to advance is given to the second place boat in the consolation heat.
- Second place in the First Consolation heat becomes the alternate for the final.
- The trailer boat may move up to the front line only if one of the regular starters is not in the water by the 30-second mark of the countdown prior to the start of the heat or if one of the regular boats is called a dead boat and is not able to start.
- An alternate boat must be in the water prior to the one minute mark of the countdown. The alternate may start as a trailer, but must immediately pull off the course if all other boats in the heat make a legal start.

PIT SAFETY

- Charging of Lithium Polymer (LiPo) batteries at the race site shall only be done with the cells placed on a non-combustible surface. Individuals charging LiPo

batteries at a race site must have in their possession in the immediate area of the batteries under charge a fully charged fire extinguisher with a NFPA/UL rating that includes Class C.

DRIVING RULES

- Each driver shall be able to show proof of current North American Model Boat Association (NAMBA) membership (i.e. card) at every sanctioned event.
- Drivers must maintain their lane and leave enough room for other boats on the race course. The referee has the discretion to issue a warning, a lap penalty or a disqualification, based on the severity of an infraction. The goal of the club is scale racing for enjoyment – no one benefits from reckless driving and damaged boats. Please race with the respect of others.
- When another boat is overtaking your own, you should maintain your lane and not try to get out of the way. It is the responsibility of the overtaking boat to make the pass safely.
- A driver may ask the Drivers Representative for an explanation of a call, but at no time will an official listen to an argument.
- Drivers may clear their propellers during a heat only when determined by the officials that conditions may warrant this exemption.

DISCIPLINE

- The goal of the club is to encourage cordial competition; however, every boat owner, driver or crew member shall be subject to disciplinary action for unsportsmanlike conduct in connection with the regatta from the time of arrival at the race site until two hours after the completion of the contest.
- Unsportsmanlike conduct shall be defined as any act which either: a. tends to bring racing in disrepute; or b. endangers the person or property of others; or c. constitutes dangerous, careless or reckless operation of boats or equipment.
- The penalty for each violation shall be any combination of the following: a. A one-lap penalty b. Heat disqualification c. Race disqualification d. A fine not to exceed \$50 e. Probation f. Suspension from ESU competition for an indefinite period to be determined by the Board.
- The Contest Director and two Board Members shall have sole power to impose a penalty for unsportsmanlike conduct at a race and shall notify the offending party of the offense as soon as possible.
- The action of the Referee, Contest Director or Board Members in imposing fines or suspension shall be subject to review by the ESU Contest Board. The penalized party shall have the right of appeal, only provided he gives thereof in writing to any member of the ESU Contest Board within 24 hours after the completion of the final heat. On such appeal, the ESU Contest Board shall have the power to reverse, modify, or affirm the ruling of the Contest Director, or Board Member, and its determination shall be final. Should the penalized party be a member of the Contest Board, the said member shall not vote in the decision regarding the appeal.
- Any fines levied for unsportsmanlike conduct must be paid prior to any participation by the offender in a subsequent sanctioned ESU event. The ESU Contest Board reserves the right to revoke a club

member's Membership if it feels that said member has shown disregard for other members and/or their equipment.

ROOKIES

- A driver is considered a rookie for an entire racing season if, prior to the first sanctioned ESU competition of the racing season, the driver has accumulated less than 2500 career points in sanctioned 1/7th scale electric competition. Rookie points are kept separately for each class.
- To qualify for racing, a rookie member must operate his boat in a controlled and consistent manner for five laps, and secure the approval of the race official to participate. Rookie drivers once qualified remain qualified for the remainder of the racing season in which they qualified. Rookie drivers must start from the trailer position until they accumulate 1,200 career points in ESU.

THE GOLD CUP

- Optional qualifying will be held for one hour prior to the drivers meeting.
- The Gold Cup consists of four flights of preliminary heats instead of three, plus the consolation and final heats.

APPEALS, WAIVERS AND DEVIATIONS:

- The board reserves to itself sole authority to hear appeals of rulings and requests for deviation and waiver of these rules by members for unusual or exceptional circumstances. Rulings by the board on all such requests are final.

SPECIAL CIRCUMSTANCES

- If a race is cancelled the day of, onsite, due to a lack of turnout causing there not to be enough members to safely put on the race, all present boats and drivers will be awarded 800 points toward their season totals