

2011

HAWAIIAN SAILING CANOE ASSOCIATION

2011

MISSION STATEMENT

“ To learn, revive, educate, and practice those ancient Hawaiian skills and values, as they relate to sailing canoes and the Hawaiian culture. ”

HAWAIIAN SAILING CANOE ASSOCIATION

2011

EQUIPMENT SPECIFICATIONS

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I. Preface: This set of Equipment Specifications have been put together to be used in the Six-Person and Wahine Six-Woman racing classes. This allows everyone a chance to compete on as close a level playing field as possible, equipment wise. The original set of Equipment Specifications were put together for the original Na Holo Kai Race, and the Ho'o Manao races. The Hawaiian Sailing Canoe Association has adopted them and has been using them for many years as well, however due to safety issues some of them have been modified. This is the latest rendition of them, and will be used for Division Racing for the year 2011. The HSCA Race Committee will inspect all canoes entered in this Division for compliance.

II. Canoe Specifications:

A.) All OC-6 Hulls raced in HSCA racing events prior to the 2011 racing season, are grandfathered in as certified by the Race Committee and Safety Committee.

B.) Only outrigger canoe hulls that conform to the H.SCA canoe criteria, and H.C.R.A. waterline and weight measurements are permitted to race. Canoe owners are required to obtain their own H.C.R.A. hull certification papers at the beginning of the race season, especially on new canoes. Uncertified hulls will not be disqualified, but will be automatically entered in the "Open Division"

C.) The minimum weight of the canoe hull, including any necessary weights as described below is 400 pounds. Only lead weights are permitted and shall be permanently secured; bolted or screwed to the seats of the canoe throughout the race. Weights cannot be removed during the race and remain secured until clearance is given by the HSCA Race Committee at the finish of the race. Adding weights to the hull will be the responsibility of the entrant. All canoes must be weighed without weights before equipment clearance is given. The minimum weight of a canoe without weights shall be 385 pounds. Weights may be checked by the HSCA Race Committee.

D.) The maximum length of the canoe is 45 feet over all... Which means from end of hull to end of hull, or end of manu to end of manu, or any combination thereof that measures the longest measured length.

E.) Canoe alterations will be limited to bulkheads and "X" bracing of exotic materials and/or wood construction. A bulkhead sump system is allowed for bilge water catchment.

F.) Any permanent or temporary blocking/spacers between the Iako and the canoe shall not exceed 8 inches.

G.) Decking other than the bow and stern are not allowed. Front and rear manu together shall not exceed 35% of hull length.

III. Ama Specifications:

- A.) Only one Main Ama is permitted...which may be rigged on either the leeward or windward side of the canoe hull. A second ama used as a safety float is mandatory on the opposite side of the hull from the Main Ama. This ama will be known as the Safety Ama.
- B.) The maximum length of the Main Ama is, 18 feet overall, from end to end.
- C.) The minimum length of the Safety Ama is, 14 feet, the maximum length of the Safety Ama is 16 feet, overall from end to end.
- D.) The width and height of the ama at the cross section shall not exceed 10 inches in diameter at it's widest point.
- E.) The ama shall not be substantially different from a typical Hawaiian design with the following characteristics:
- 1.) Lupe.....(uniquely shaped fore end of the Ama)
 - 2.) A longitudinal curvature to the Ama which is convex and smooth flowing.
 - 3.) The cross section over most of the length shall be round, or oval, without fins, keels, planes (flat) surfaces.
 - 4.) See Illustration: (Enclosure D)
- F.) All Ama subject to template check by HSCA Race Committee.
- G.) Any blocking or spacers between the Iako and the main round oval cross section of the ama shall not exceed 6 inches in height. The risers may be hollowed out to allow water to flow through.
- H.) For safety reasons all Ama must be of solid foam core design, Hollow Ama will not be allowed.
- I.) Ama Position:
- 1.) Safety Ama: The mandatory Safety Ama will be attached to the Iako, opposite the hull from the Main Ama. It shall be lashed not more than 4 feet, 6 inches from the outside of the gunnel, to the center line of the Safety Ama. The bottom of the Safety Ama shall not extend below the level plane of the top of both gunnels. See Illustration (Enclosure C)

2.) Main Ama: The Main Ama may be lashed to the Iako any distance from the hull of the canoe. See Illustration: (Enclosure C)

IV. Iako Specifications:

A.) Iako shall be constructed entirely of wood. Lamination of wood is permitted. Sheathing or lamination with exotic materials is not allowed. Iako dimensions must be no less than 3"x 3" wide at the weakest point. Any length is allowed. Hollow designs are not allowed.

V. Mast, Boom, and Spar Specifications:

A.) Mast and Spars shall be constructed of wood, which shall be round or nearly round, or if of a square nature, with very rounded edges and a maximum diameter of 4 inches. Lamination of wood is permitted. Sheathing or lamination with exotic materials is not allowed. Mast and Spars may be solid or of a box design. However, if the Mast, Boom, and/or Spar are of a box design, wall thickness must be a minimum of 5/8 of an inch.

B.) The maximum length of the Mast will be 23 feet. The measurement must be made from the top of the Mast to the bottom of the Mast. Boom and Spar lengths can be made to fit sail dimensions. Mast, Boom, and Spar ends may be tapered to suit.

DIMENSIONS:	<u>Diameter</u>		<u>Length</u>
Mast:	2 3/4" x 2 3/4"	MIN.	23 ft. Max.
	4" x 4"	MAX.	
Boom:	3" x 3"	MIN.	Fit to Sail
	4" x 4"	MAX.	
Spar:	2 3/4" x 2 3/4"	MIN.	Fit to Sail
	4" x 4"	MAX.	

C.) The mast shall be stepped in or on the hull of the canoe and may be rotational. Unstayed Masts are not permitted.

D.) One end of the Boom may have a jaw or fork to fit with Mast.

E.) Configuration:

- 1.) Lateen Style....Mast, Boom, Spar...See Illustration (Enclosure E)
- 2.) Crab Claw Style.....Mast, and Boom only.....See Illustration(enclosure E)

VI. Sail Specifications:

- A.) Each entry shall fly no more than one sail at any given time during the HSCA race. A Sail rigged as a jib or spinnaker is not allowed.
- B.) All sails shall be of Crab Claw or triangular Hawaiian design which meet the following criteria and standards.
 - 1.) Sail material shall be fabricated of no less than 3 ounce Dacron sail cloth.
 - 2.) Maximum sail size will be 150 square feet.
 - 3.) No Battens allowed.
 - 4.) Reef points on Sail are permitted.
 - 5.) Sail shall be constructed in such a way that the length of the Leech shall not be more than the length of the Luff, and the length of the Foot shall not be less than the length of the Luff. See attached sail Measuring Instructions...See Illustration(Enclosure B)
 - 6.) Sail shall be laced to Mast or Spar. No track systems are allowed. Sail may be laced to the boom as in a Closed-Foot design or the Sail may be attached to the ends of the Boom to form an Open-Foot design.

VII. Trampoline Specifications:

- A.) The use of Trampolines for counter balance and extra storage on both sides of the canoe are allowed.
- B.) Trampoline Spars must be constructed of wood. Wood lamination's are allowed. Sheathing and lamination's of exotic materials are not allowed. Hollow designs are not allowed.
- C.) Foot straps are allowed to be part of the trampoline, However hiking out harnesses are not allowed.

VIII. Spray Cover Specifications:

- A.) A water resistant or waterproof Spray Cover System on the entire length of the canoe, excluding the front and rear Manu is mandatory.
- B.) Plastic hoops or carved foam blocks are permitted under the Spray Covers.
- C.) No solid decking allowed.

IX. Rigging Specifications:

- A.) All attachment points done in cordage, over or under rubber, or ratched straps.
- B.) All Sail Mast, Boom, and Spar rigging, including Stays, Shrouds, and Leeds shall be done in cordage, rope, and line. The Sail shall be laced with cordage to the Mast, or Spar, and to the Boom as well.
- C.) Wire rigging is not allowed.
- D.) Clips, bolts and/or other hard fastening devices are not allowed. No through bolt rigging allowed.
- E.) Metal/Plastic pulleys, cleats, and jamb cleats are permitted on the Mast, the Mast Stay lines, the Halyard, and the Sheet Line.
- F.) Boom vang's are not allowed.
- G.) A combination of Mast and Spar to create a winged mast is not allowed.

X. Paddle Specifications:

- A.) All Paddles shall be constructed of wood with single blades. Sheathing with exotic materials is allowed.

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Safety Policy

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I. Decision Making and Enforcement:

A.) A Safety Commissioner will be appointed by the President subject to approval by the Board of Directors. The Safety Commissioner will be responsible for choosing two people to serve with him/her on the Safety Committee. The Safety Committees duties include:

- 1.) Attending All HSCA events.**
- 2.) Making sure that all participants are in compliance with the HSCA Safety Policy.**
- 3.) Making any decisions related to the HSCA Safety Policy, including whether to cancel an event or race due to unsafe weather conditions or other unsafe conditions.**
- 4.) Working with the Race Director and Assistant Race Director to form the HSCA Race Committee that oversees all event and racing activities.**

B.) Any canoe that does not meet the requirements set forth in this document, as interpreted by the HSCA Safety Committee, will be excluded from the event or race.

C.) Failure for any Captain to have the required safety equipment at an HSCA event race will result in the following punitive actions:

or

- 1.) The canoe in question will not be allowed to sail in that event or race.**
- 2.) The Captain of the canoe in question will be required to reimburse HSCA for all expenses incurred to support that Captain, ie., shipping, hauling, food, drink, etc.**
- 3.) The Captain and canoe involved in the infraction will not be able to participate in an HSCA event or race, until all safety and reimbursement issues have been resolved.**
- D.) Aerial observation by the Civil Air Patrol to be determined by the HSCA Board of Directors and the HSCA Race Committee.**

E.) All sailing canoes are required to meet or exceed these requirements. The Hawaiian Sailing Canoe Association has raised the safety bar a notch to satisfy its own concerns, as well as the concerns of participants, sponsors, and the United States Coast Guard.

II. Weather Conditions:

where wind
A,) Weather conditions are discerned by observation at the time, and from the latest National Weather Service forecast. The national Weather Service generally terms conditions where wind speed is 25 to 30 mph as Small Craft Advisories and speed is 35 mph and above as Gale Warnings.

Small
B.) No event will be allowed to take place, in weather conditions that exceed Craft Advisories, where wind speeds are above 30 mph.

III. Safety Equipment:

approved
HSCA Safety
A.) Each canoe must carry the following items attached to the canoe in an manner and must be readily accessible and available for inspection by the Committee.

- be
race.
- 1.) An E.P.I.R.B.....This is an Emergency Position Indicating Radio Beacon.
 - 2.) A VHF marine radio....with a fresh battery pak.
 - 3.) A PFD (Personal Flotation Device) for each person on the canoe. Must U.S.C.G. Approved and readily accessible....not necessarily worn during the
 - 4.) Three Smoke Flairs.
 - 5.) One Waterproof Strobe Light with fresh batteries.
 - 6.) A, U.S.C.G. Approved storm whistle attached to each PFD.
 - 7.) A Towing Bridal (125 feet....min. 3 strand 7/16" Nylon Rope or Line).
 - 8.) A Knife or Knives.
 - 9.) Spare rubber, line, cordage, and Duct Tape.....for emergency repairs.

- 10.) A manual bilge pump.
 - 11.) A through hull self bailer, or, two (2) manual bilge pumps.
 - 12.) Two (2) Buckets for manual bailing (minimum 1 gallon size).
 - 13.) A safety strap or harness for each person on the trampoline.
 - 14.) Two (2) Spare steering paddles.
 - 15.) A minimum of seven (7) paddling blades are required on each Six-Person, and Wahine(Six-Woman) canoe, and 4 to 5 paddling blades for 4-Man canoes.
 - 16.) Each entry shall provide for the sailing canoe Crew and Captain adequate liquids and nourishment for racing.
- B.) Suggested supplemental safety items can also include:
- 1.) A reflector mirror.
 - 2.) A man overboard marker.
 - 3.) A GPS for use in emergency only.
 - 4.) A cellular phone for emergency use only.
 - 5.) A UHF band radio. (Aircraft Frequencies)
 - 6.) A 6"x 25' Floating Safety Strip.
 - 7.) Colored Dye Pak.
 - 8.) Extra Flairs
 - 9.) Personal, wearable safety pouch for Sheet Person on trampoline.

IV. Equipment:

A.) Ama: Due to numerous problems cracking, breaking and filling with water, HSCA has adopted a rule as of 1998 for all new ama to be of solid foam core design.

B.) Removable floatation devices (air bladders or foam blocks) within or on top of the hull of the canoe and beneath the spray covers are permitted. Flotation devices shall be removable by hand and not require any tools to install or remove.

V. Water Safety and Escort Boats:

A.) For Safety and insurance purposes, the HSCA will provide escort boats for canoes participating in HSCA events and races. This is paid for out of the budget available from sponsors and event/race fees.

B.) The number of escort boats will be determined by the number of entries. One escort for every two (2), 4-Man Teams, and one escort boat for every three Six-Person, Wahine (Six-Women), and Open crews.

C.) Each entry that has crossed Hawaiian Channel waters less than three (3) times must provide their own HSCA approved escort boat at their own cost. Crews that have been certified by the HSCA Safety Committee as having the minimum of three (3) crossings do not need to provide their own escort boat. Failure to have a previously inspected escort boat may result in immediate disqualification, and denied participation in the event/race.

D.) Each escort boat must be able to maintain a speed of eighteen (18) knots in order to keep up with the canoe entries.

E.) Each escort boat must have on board at least one able bodied crew member to assist in emergency.

- F.) Each escort boat must be able to carry the entire crew of a sailing canoe.
- G.) Unsafe conditions due to escort boats being overloaded with "stuff", or being overcrowded with spectators or extra "helpers", can result in an escort boat being declared unfit by the HSCA Race Committee.
- H.) Each escort boat, must be at least 24 feet long.
- I.) Each escort boat, in addition to following U.S. Coast Guard regulations, must carry:
- 1.) A VHF Radio.
 - 2.) A First Aid Kit.
 - 3.) An EPIRB
 - 4.) A towing bridle of 125 feet of at least 7/16" three(3) strand nylon rope.
- J.) The purpose of having an escort boat is for Safety.....The escort boat must be available at any given moment to respond to any emergency....Hence NO SIGHT SEEING, and NO FISHING during the event/race until the last canoe has safely finished.
- K.) The escort boat shall remain a minimum of three (3) canoe lengths away from a canoe Any canoe assisted by an escort boat by towing,pushing with waves, wakes, or other means will be Disqualified by the HSCA Race Committee, unless the canoe is in a swamped condition. At no time may the escort boat go in front of a canoe as to give it an added advantage.
- L.) Any escort boat that intentionally interferes with any other canoe during the course of a race will cause the Disqualification of the canoe they are assisting.
- M.) Swamping or Huli (Overturning of a canoe)
- 1.) If a canoe swamps or overturns at or after the start of the race, the canoe can be righted and/or bailed out and allowed to continue the race.
 - 2.) Any assistance rendered a swamped canoe by its escort boat will not Disqualify that canoe entry.

VI. Insurance:

- A.) All sailing races and events that the HSCA is involved in shall be insured.
- B.) All persons sailing or escorting(including passengers) must sign an appropriate HSCA Liability Release form.
- C.) The HSCA Race Director is responsible for seeing to it that the proper paperwork is complete.

VII. Navigation:

The Hawaiian Sailing Canoe Association provides racing courses throughout the Hawaiian Island Chain, from island to island, across all of the major channels and along some of the the most beautiful and scenic coastlines in the state. The ancient Hawaiians did not have access to modern navigational devices, such as the compass and more recently GPS units. What they relied on was their knowledge of the sea, sky, wind, waves, currents, and seasonal weather patterns. With every race venue in the HSCA race schedule, each Crew, Captain, and Canoe have the opportunity to navigate the old Hawaiian way, so as to keep everyone on a somewhat level playing field. The use of a compass, in the interest of safety has been adopted as a basic navigational device allowed in channel crossings. When racing, the idea is to get from point "A" to point "B" before anyone else, so it stands to reason that a good piece of navigation will go a long way towards winning a race. No Rules have been set up by the HSCA for navigation or navigational aids, because mainly its been on an "Honor" system of sorts. In other words.... you may use a compass when necessary but if you use a GPS Unit, your cell phone, or your two way radio, escort boat, or hand signals with escort boats to navigate (unless emergency) you will be compromising the "Honor" system we all try to race by. This is not to say that GPS Units, Cell Phones, and Two- way Radios are not allowed, as they are valuable safety devises. But if they are taken with you they should be used only as back-up safety devises. Enjoy and Be Safe.....HSCA.

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Race Rules 2011

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I. Race Committee:

A.) The Race Director will be appointed by the President and will choose an assistant to help with race duties. The Race Director and Assistant Race Director will combine with the Safety Commissioner and the Safety Commissioners two assistants (See Safety Policy) to form the HSCA Race Committee.

B.) The HSCA Race Committee will be responsible for running the Race and dealing with any decisions regarding Race Rules, Equipment Specifications, or Safety Policy compliance.

II. Race Fees 2011:

A.) Six-Person and Wahine (Six-Woman) Division race fees are \$550.-- Per weekend event.

B.) Holopuni/³4-Man canoes will race in the 4-Man Division. Race fees are \$450.-- Per weekend event.

C.) All other division fees will be addressed by the HSCA Race Committee.

D.) Crew change on 2 day events. \$20.-- Per head crew change fee to cover additional food and insurance.

E.) Na Holo Kai 2011 Race fees. Fee for Na Holo Kai 2011 will be set about 1 month prior to the race and will be determined by participation. Fees may be required in advance, to secure a spot in the race.

F.) What do you get for your race fees?.....Escort boats, insurance, food, and an occasional T-shirt and some awards.....

III. Eligibility:

A.) HSCA Races shall be open to all canoe clubs and/or organizations meeting the requirements of the Hawaiian Sailing Canoe Association (HSCA). The HSCA Race Committee has the right to accept or reject any application.

- B.) Each club or organization must submit a completed entry application on an official entry form provided by the HSCA Race Committee. No entry will be accepted unless this entry application, entry fee, safety inspection, crew certification and all other entry requirements are fulfilled.
- C.) Merging of canoe clubs for the purpose of entering races is permitted.
- D.) All other organizations requesting entry in to HSCA Races, shall obtain prior written or verbal approval from the HSCA Race Committee.
- E.) Each club or organization must submit a signed document of proof verifying its liability waiver. All participants and the Crew and Captain must sign the liability waiver. A form for this will be provided by the HSCA Race Committee.
- F.) HSCA, for reasons of safety will reserve the right to certify Captains and Crews. If you are not properly certified you will not be allowed to participate in HSCA sanctioned races. Certification will be the responsibility of the HSCA Race Committee.

IV. Crew:

- A.) The final selected race Crew for each race, for the Six-Person Division shall consist of (6) six members. Crew may be all male or mixed male/female. Wahine Division Crew shall consist of (6) Six-Woman. The Crew entry shall finish with the same crew members it started with or it will be Disqualified...DQ'd.
- B.) A Crew member cannot be replaced after the start of the race.
- C.) In the case of a Crew member who accidentally falls overboard, the canoe shall turn back to pick-up that Crew member, and the escort boat after assisting in the safety of the person overboard, need not remain stationary, and can transport the Crew member forward to the canoe.
- D.) The HSCA Race Committee will have the right to decide if a Crew in question can safely participate in an HSCA event based on knowledge and ability in open ocean conditions.

V. Conduct of Race:

A.) A Pre-Race Meeting/Briefing at 5:00pm the afternoon before the Race, at the Race Site Start.

B.) A second Pre-Race Meeting/Briefing shall be held 1 hour before the race, at the Race Site Start, before the Puli.

C.) Each entry shall finish with the same Crew members it started with.

D.) Each entry must finish with their Sail, Mast and Spars on their canoe.

E.) Failure to comply with the rules/procedures as outlined in the HSCA Race Rules shall result in disqualification of the canoe entry by the HSCA Race Committee. Serious disregard for safety and/or any other critical violations of the HSCA rules/procedures shall result in severe penalties and/or sanctions against the canoe Captain, Crew, and/or canoe club in the present or future of HSCA sponsored races.

F.) All protests/complaints of rule violations shall be made known immediately to a Race Official and submitted to the HSCA Race Committee by the Captain or representative of the entry within (1) one hour after the finish of the race. Any decision by the HSCA race committee shall be final and binding.

G.) The HSCA Race Committee will establish a cut off time/distance from the finish point for each event. All entries that do not meet or exceed a time/distance cut off point will be required to be towed in. This is to ensure all the canoes are off the water by sunset. This is Mandatory.

H.) All canoes requiring towing to finish will be considered D.N.F. (Did Not Finish). No points or awards will be given for D.N.F.

I.) Equipment cannot be passed between canoe and escort boat during the race/event unless the canoe over turns or swamps.

VI. Divisions:

A.) Six-Person Division:

- 1.) Mixed Male/Female Crews are permitted. Six (6) Persons only.
- 2.) Canoe must conform to HSCA Equipment Specifications.
- 3.) HSCA Safety Policy and HSCA Race Rules must be adhered to.

B.) Wahine Division:

- 1.) Only All Woman Crews are permitted. Six(6) Women only.
- 2.) Canoe must conform to HSCA Equipment Specifications.
- 3.) HSCA Safety Policy and HSCA Race Rules must be adhered to.

C.) Four- Man Division:

- 1.) Mixed Male/Female Crews are permitted.
- 2.) Sail size is 150 square feet or less. One sail only. Battens are not allowed. Sail must conform to Six-Person or Wahine (Six-Woman) Division Sail criteria as defined in HSCA Equipment Specifications. See Illustrations (Enclosures A & B).
- 3.) Canoe length is 31 feet or less.
- 4.) Any weight measurement will be allowed.

5.) Ama: Typical Hawaiian Style Ama. See Illustration (Enclosure D). A Safety Ama is required. The Rules regarding the placement and size of Ama are the same as Six-Person and Wahine (Six-Women) HSCA Equipment Specifications. An Equal side Tri- Maran set-up is allowed. All Ama must be of a solid core design (Exception: Holo Puni until the beginning of the 2012 Race season.) No canoes, including Holo Puni will be allowed to race in Na Holo Kai with hollow Ama.

6.) Any manual mechanical pump or through hull bailing system is allowed.

7.) Trampolines: Fit to suit rig.

8.) Canoe covers or equivalent water resistant, or waterproof decking is mandatory.

9.) A maximum of four (4) persons and a minimum of three (3) persons will be allowed to crew in the Four-Man Division.

10.) Holo Puni are in this Division.

11.) HSCA Safety Policy and HSCA Race Rules must be adhered to.

D.) Open Canoe Division:

1.) Any thing goes, however, this must at least look like a Hawaiian Sailing Canoe.

2.) No Kites, No center boards, No hydrofoils,

3.) Ama: Single, HSCA Offset, and Tri-Maran Styles are acceptable.

4.) Jib sails are O.K.

5.) No other propulsion devices other than paddles or sails are allowed.

6.) This division will also contain single hull canoes not meeting Six-Person, Wahine (Six-Women), and 4-Man Division sailing canoe specifications.

7.) HSCA Safety Policy and HSCA Race Rules must be adhered to.

E.) Double Hull:

1.) Open to interpretation and certification by HSCA Race Committee.

VII. Awards:

A.) Awards and Points toward the year end championships will be given in the Six-Person, Wahine(Six-Woman), Open, and 4 – Man Divisions. Mix Crews will be classed in the Six-Person Division.

B.) Certificates of participation will be awarded to Double Hull Canoes and their Crews

HAWAIIAN SAILING CANOE ASSOCIATION

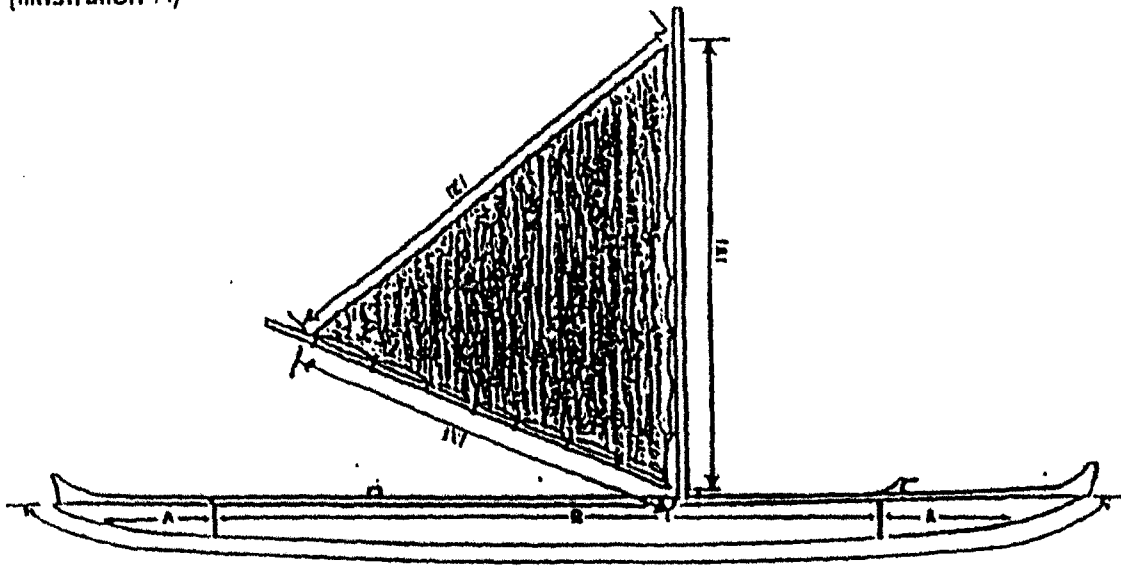
2011

Enclosures

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(Illustration A)



AMA & HULL DESIGN

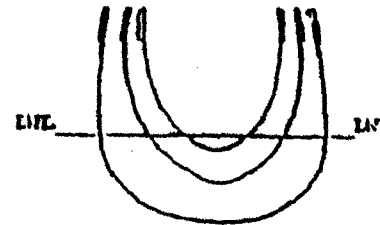
Transverse & longitudinal curves all must be convex & smooth flowing without any straight lines or concave.

Straight lines or concaves are also not allowed in any cross sections of the bow or stern with the exception of straight lines in the freeboard area only.

Typical cross section of a Hawaiian hull design as illustrated shall be present in at least 75% of hull length.

SAIL DESIGN

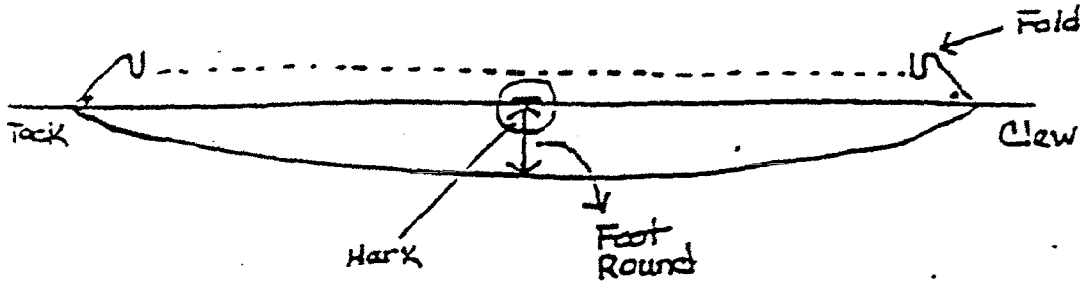
Sail shall be of a typical Crab-claw or triangular Hawaiian design in such a way that the length of the leech (z) shall not be more than the length of the luff (Y) [Z S Y], and the length of the foot (x) shall not be less than the Length of the Luff (y) [X Z Y]



Typical Cross Sections
of Hawaiian Hull & Ama Design

MEASURING INSTRUCTIONS

Fold foot flat to remove shade. Draw straight line from Tack to Clew. Measure foot round and make mark.



measure height of sail from head to mark in foot. Remove all wrinkles from Sail when measuring $1/2$ (foot length x height) = Area of Sail #2

Copy step #1 for Luff round.

the from Head to Tack Area = $1/2$ (Luff length x Luff round) #3

Copy step #1 for Leech hollow

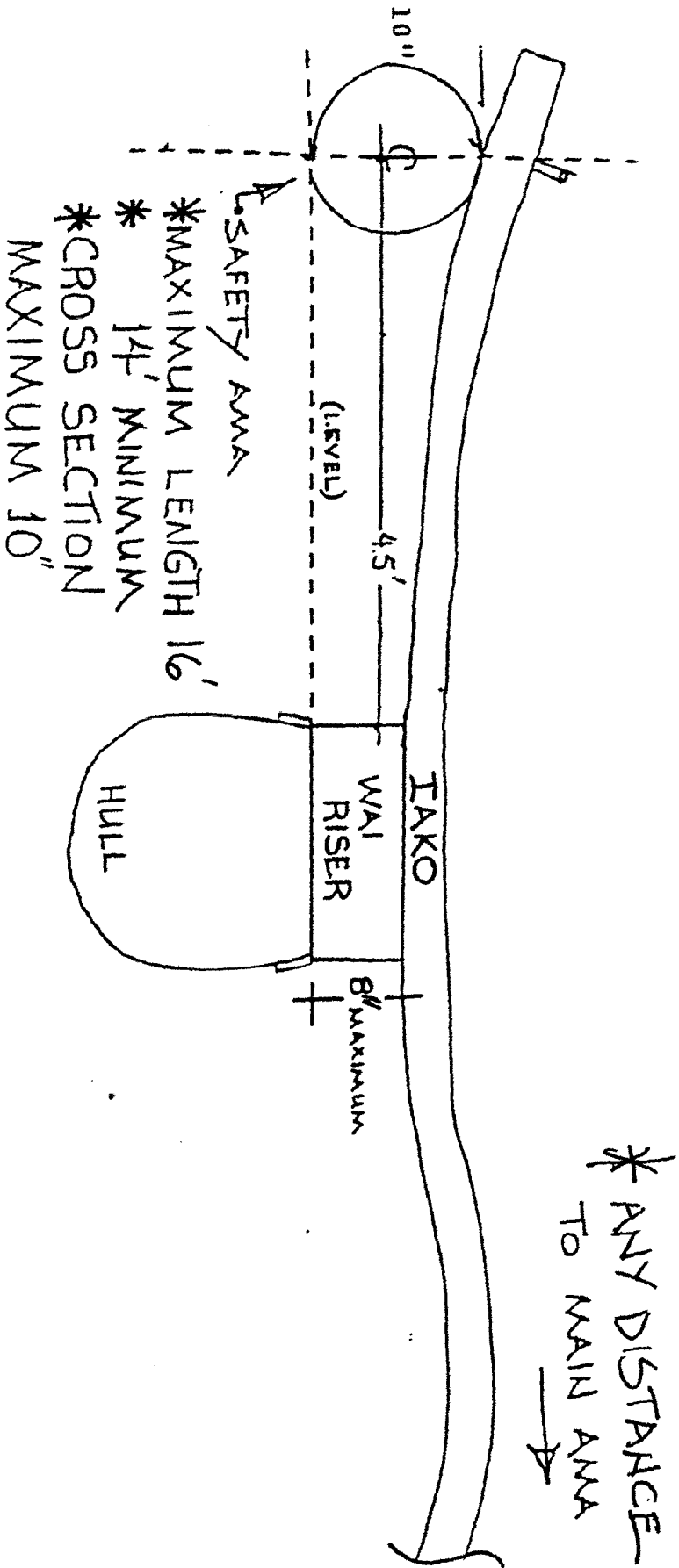
e from Clew to Head

s will be a negative Area #4 = $1/2$ (Leech & Length x Hollow)

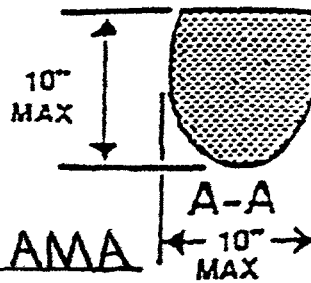
$$\text{Sail area} = (\text{Area \#1}) = (\text{Area \#2}) = (\text{Area \#3}) - (\text{Area \#4})$$

$$\text{Sail area} = 150 \text{ square feet}$$

Enclosure B



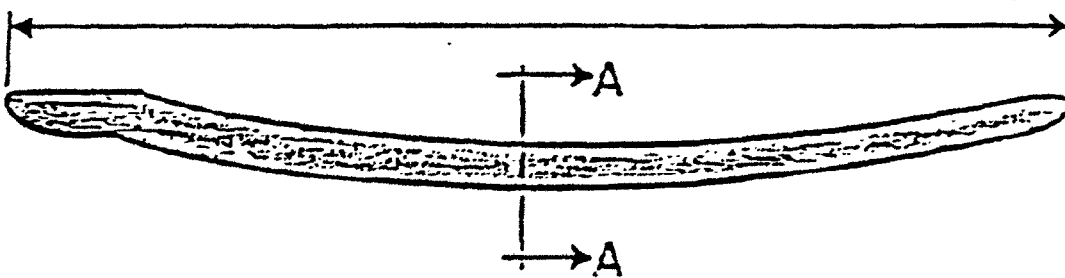
Enclosure C



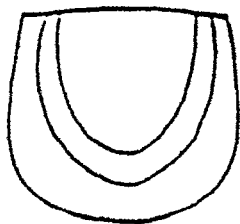
PRIMARY AMA or MAIN AMA

- * SHAPE SHALL BE OF A TYPICAL HAWAIIAN DESIGN
- * LENGTH OF AMA SHALL NOT EXCEED EIGHTEEN (18) FEET
- * CROSS SECTIONS OF THE WIDTH AND HEIGHT OF AMA SHALL NOT EXCEED TEN (10) INCHES

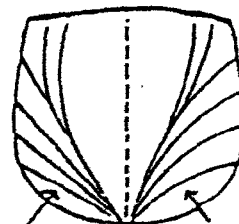
18' = MAXIMUM LENGTH OF AMA



TYPICAL CROSS SECTIONS OF HAWAIIAN AMA DESIGN ALLOWED



CROSS SECTIONS NOT ALLOWED



No Stiffening
Lines in Any
Cross Sections

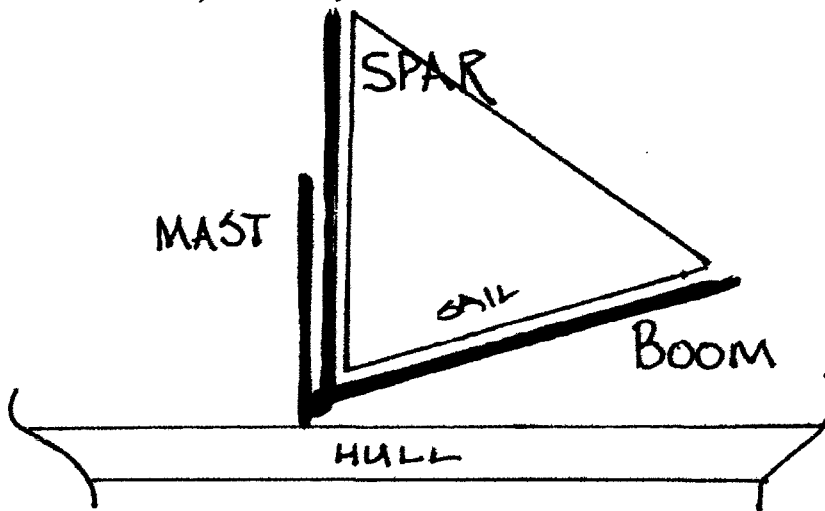
No Concaves
in Any Cross
Sections

Enclosure D

V. Mast, Boom, and Spar Specifications:

E.) Configuration:

1.) Latten Style.....Mast, Boom, Spar:



2.) Crab Claw Style.....Mast, Boom:

