INTERNATIONAL RENEGADE ICE YACHT ASSOCIATION

Background of Notes Pertaining to Renegade Plans:

In order to maintain the integrity of Elmer Millenbach's original one-design concept, the Renegade Association has elected to "not" modify the plans. However, members and prospective builders will be provided guidance information reflecting modifications that have evolved over the past 50 years that are not considered to significantly change the original one-design concept. This information is intended to denote guidance on modification that presently exist, enabling owners and builders to refine their boats and avoid costly, time consuming rework that may occur without this information. The responsibility for maintaining the integrity of the design has been delegated to the Technical Committee. The Committee shall be made up of three (3) people, including a Chairman. In turn, they are solely responsible to the Association officers. The Technical Committee's formal responsibility will be to respond in writing, via the class secretary, to written questions pertaining to the class plans, guidance information and construction details.

POLICY STATEMENT

The Technical Committee will continue the policy often stated by our class designer and founder ELMER MILLENBACH, "***If it does not look like a Renegade, it is not a Renegade***."
The primary responsibility to "police" the integrity of the one-design Renegade is with the competing skippers and not the Committee. It is the obligation of a skipper to protest a competing Renegade that is not in compliance with the **intent** of the class plans and guidance information as revised and amended. Technical protests shall be filed in writing to the Race Committee and may be filed at any time during the regatta, prior to two hours following the last race, or within two hours after the regatta has been declared completed by the Race Committee. The Race Committee shall promptly refer such protests to the Technical Committee Chairman or the Technical Committee members, the Commodore or Secretary for prompt resolution on the ice if at all possible. The Technical Committee is solely responsible to rule on such protests. A racing protest follows rules spelled out by the National Iceboat Authority. Before awarding the prizes, the Race Committee shall be satisfied that all prize winning Renegades are free of any technical protests by a competing Renegade. Technical protests that have not been ruled on, for whatever reason, prior to the award of prizes shall be stated at that time and any pending award to an unresolved protested yacht shall be withheld until the protest is resolved. Protests not resolved within 60 days of the prize award date shall be considered void and the regatta results will be final and withheld prizes awarded.

The attraction of a Renegade to most Renegade owners is the strict one design class rules. The Renegade philosophy incorporated into the rules is we want to go iceboating; we don't want the time and money obligation that goes with a class governed by a no-limits rulebook. We would rather win races by working on our sailing and tuning skills, not by exploring grey areas of the rulebook in search of a competitive advantage. The class rules were created to prevent any changes that may affect performance, so that on the ice, every boat is the same. The small number of class rule changes allowed has been minor; the sole intent of those changes has been to make racing the Renegade more comfortable or more reliable. Over the years the class has refused to allow rule changes that would result in more expensive and complicated equipment, or would make older boats obsolete. If you feel you want to change something on a Renegade – STOP. Ask yourself why you want to do it. If your answer is "to make me go

faster", there is a very good chance the modification or addition is illegal! If the plans do not specifically allow a change or addition - IT IS ILLEGAL! A protested feature of a Renegade that does not comply with the plans and guidance information and **adds significantly** to the boat's speed potential, in any condition; the protest must be allowed. All protest rulings by the Technical Committee shall be final and not subject to appeal.

RENEGADE TECHNICAL ADVISORY COMMITTEE

The Board of Directors appoints the Committee members when a member position opens (every 2 years). The Chairman, whom must have served previously on the Technical Committee, is appointed by the Board of Directors.

The original document (1997) was drafted by Chairman Roger Derusha, with the assistance of the Technical Advisory Committee and the class officers.

Following is some additional committee and membership information. The chairman appoints the members when member positions are open (March 1, 2002 minutes of Article IX Section 6).

The Commodore usually appoints the longest serving member of the committee to the position of chairman.

Refer to Renegade By-Laws & Constitution for current committee members.

RENEGADE PLAN GUIDANCE INFORMATION

Conflicts: The following guidance information has precedence over the Renegade Plans

SHEET 1 - FUSELAGE, SPRINGBOARD, RUNNER PLANK, LINES & OFFSETS

1.1 FUSELAGE: The cockpit opening width may be increased to the edge of the upper chine to suit the builder, and the deck surrounding the opening may be reinforced with extra thickness of 1/8 inch plywood if desired.

1.2 SPRINGBOARD: The springboard is also dressed to a degree of stiffness, such as the plank, so they work together under a load applied at the mast. The bottom, bow surface of the chock may be angled slightly upward in way of the rudder chock to improve turning performance.

1.3 PLANK: Plank crowns have varied from eight inches down to three inches to suit builder preference. Planks will less crown are usually stiffer and require more weight to straighten, consequently the weight to straighten, consequently the weight needed to deflect the plank one inch when applied to the middle of the plank when supported at the chock locations may vary form 100 pounds to 150 pounds. Under heavy sailing conditions the plank should be below level, but not allow the boat to bottom out on normal snow-free ice. Heavier skippers obviously require stiffer planks. The bottom ends of the plank are usually tapered upward and outboard in way of the chocks so the chocks are near vertical with the skipper in the cockpit and in light sailing conditions. Step pads are usually fastened to the plank adjacent to the fuselage to protect it from creepers worn on the feet.

SHEET 2 - CONSTRUCTION DETAILS

2.1 FUSELAGE: Epoxy glue is usually used in all glue joints throughout the Renegade. Bulkhead No. 8 may be downsized and moved forward, as well as lengthening the eight-inch support plywood form Bulkhead 11 to 8, to suit taller skippers requiring shorter steering pedal boards. Heel blocks and also glued to the fuselage bottom in order to minimize the forces on; the steering spindle and spindle bearing fasteners. Guide plates for the pedals have been made of plastic to reduce friction in hand steering. Two plank bolts and angle clips located in the middle of the plank have been used in lieu of four. Whisker stay tangs may be moved to the forestay bolt using a vee weldment inlaid into the bow block and long enough on each side for pins to clear the springboard. Aluminum angles for springboard bolts should be 1/4 inch if coarse bolts are used. Tubular ferrules may be used at bulkheads penetration for hand steering lines to minimize friction. Additional longitudinal deck and bottom stringer may be used for additional strength or to improve fairness. The plywood seat back may be held in place with shock cord and "S" hook and may be padded/covered at the owner's option. A roll bar, head rest and hand brake may be installed also at the owner's option. A name on the fuselage side is optional, as well as application of cockpit edge trim.

SHEET 3 - SPAR & FITTINGS

3.1 MAST: Three-piece masts with square hollows have been used successfully. A glue clean-out string (with a rag) should be laid into the main halyard tunnel prior to final gluing and installation of the top knot. The bottom exit of the halyard is just above the bottom solid section. Remove the string when the tunnel is clear to glue after clamping. A smooth and free passageway at the topknot is essential for subsequent halyard installation. The gooseneck track portion of the mast may be extended aft at the bottom so the track is more parallel to the sail tunnel, and then shaped in a concave transition to the heel fitting. Plastic or a non-galling material may be used for the halyard sheave and wood dowels are used in lieu of bolts when assembling the half sheave securely on top of inner lamination end(s). The inner topknot wood grain is usually placed 90° to the mast grain and the outer laminations extend to the sides of the topknot. The sail tube may be fastened with #4 FH wood screws or glued with epoxy, or both. Roughen the aluminum for a better bond. The spreader bushing ID should be 3/8 inch, and both upper and lower diamond stay tangs should be double bushed and bolted for bearing strength in the mast.

3.2 BOOM: Laminated booms may be used. Boom stiffness may be altered to suit the sail shape. The gooseneck assembly may be such that there is a straight transition of the sail form mast to boom tack fitting. (It's best to install the sail tack, clew and headboard plates yourself and drill pinholes with the mast, sail and boom rigged.) Main sheet blocks may be located other than as shown, and may be mounted on an adjustable track.

3.3 GOOSENECK TRACK: The gooseneck bar in way of the bronze gooseneck slide should be stainless steel, sized to smoothly suit each other.

3.4 CLEW FITTING: The size of the clew plate may be extended to the bottom and back edge of the boom, enabling more fasteners and load distribution. The plates may also be thicker and the pin holes larger to provide greater load bearing strength. Regardless of the above the 8-foot 8-inch maximum hole spacing cannot be exceeded.

3.5 GOOSEENECK (ASSEMBLY): The side plate thickness and pinhole size may be increased similar to the clew fitting. The tunnel tube may be extended to the end of the boom,

but should be relieved at the tack end as shown. The gooseneck stud and toggle parts may be stainless steel. The gooseneck slide and stud assembly should be as short as possible fore and aft in order to place the sail tack-plate pinhole as close to the sail tunnel rope as possible. The sheave may be of another material or commercial, and may be bolted.

3.6 BLOCK BASE: The type of block base used may be at the builder's option.

3 7 SPREADER: The spreader stud may be 3/8 inch in diameter, and the spreader may be made of solid aluminum and/or a larger diameter-with or without end bushing as shown. The spreader swivel end may be a slot or similar to the swivel bolt shown.

3.8 LINK: The link may be at owner's option; however, 5/16 inch diameter shackles (four each) are recommended between the bail, the link and the shroud connector.

3.9 CONNECTOR: Thicker material for increased pin bearing strength may be used, the shackles or cable-end fitting may be riveted or bolted at builder's option.

3.10 BAIL: The upper bail leg may be made longer to allow for two 1/4 inch bolts in lieu of one for greater bearing strength in the mast. Material may be 1/8 inch thick and the connection at the shackle may be welded or bolted.

3.11 SHACKLE: 5/16 inch diameter shackle may be used.

3.12 HALYARD: 5/16 inch diameter 7x19 galvanized wire rope may be used with a 1/4 inch nicro pressed 1/4 inch shackle at the head-board end and a reshaped eye terminal at the hook end.

3.13 HALYARD PAINTER: A high strength, small line may be used. A suitable "S" hook, with one closed and welded for a line splice and the other end shaped to suit, may be used.

3.14 SHACKLES: The forestay shackles at the tumbuckle and connector ends may be 5/16 inch diameter. The side shroud shackles may be 1/4 inch diameter. The whisker (framing) stay and steering cable shackles may be 3/16 inch diameter or larger. Side shroud tumbuckles may fit over the plank tangs without shackles.

3.15 TANG: Double bolted 1/8 inch thick or thicker diamond stay tangs, top and bottom, may be used (Note—four required).

3.16 TURNBUCKLES: Stainless steel tubing may be used and pin holes and pins may be larger than 3/16 inch in diameter.

3.17 HALYARD PLATE: The halyard plate may be slotted at the bottom in way of the halyard hook with screw holes on both sides. (See hook below.)

3.18 HALYARD HOOK: 1/8 inch aluminum channel is recommended. It may be set into the mast to the top of the hooks for a straighter halyard transition and to avoid hooking clothing.

SHEET 4 - HULL FITTINGS

4.1 BLOCKS AND RELATED PARTS: Alternative blocks and attachments may be used. A third deck block may be used with the dead ending of the main sheet at the boom (maximum of six

blocks). At the builder's option, a means of adjusting the location of both boom and deck blocks may also be installed.

4.2 WHISKER STAY TANG (PLANK): Heavier material and larger pins may be used. A longer tang if desired is also acceptable.

4.3 MAST STEP BALL: Make or buy extrusion as shown. A longer step may be installed.

4.4 TANGS: The hull whisker stay tang may be resized and located as described on Sheet 2 Fuselage. The fore stay tang should be 3/16 inch stainless steel, sized to suit the shackle, tumbuckle, pin and forestay through bolt, which may be 1/2 inch diameter. The plank shroud tangs should be 1/8 inch sized to suit shackle, tumbuckle, pin and chock bolt.

4.5 SPINDLE BEARING AND PLATE: Make as shown. Grease at installation. 4.6 STEERING LINKS AND PAD: Make as shown, except stainless steel should be used for the links.

4.7 TILLER ROPE BLOCKS: Make as shown, or adapt commercial blocks to work in the same manner.

4.8 TILLER STOCK: Make as shown. A castle nut and locking pinhole may be used to maintain the nut setting.

4.9 PEDAL YOKE AND SPINDLE: Make as shown

4.10 RUDDER PEDALS: Make as shown, except subtract or add to length at aft end to suit skipper and locate heel blocks accordingly. Metal wear and widening "U" straps may be bolted flush to the aft end of the pedals with the "U" portion extending outboard port and starboard. Alternate adjustable pedals using rectangular aluminum tubing and sliding wooden pedals inside with adjustment holes and pins may be used.

4.11 RUDDER YOKE AND CHOCK: Make as shown from stainless steel, except a beveled joint preparation on the vertical chock sides should be done to improve weld penetration and strength of this important part. Welding sequences, size and timing should be considered to minimize distortion which will affect alignment. A fabricated aluminum rudder chock may also be used. Plates of 3/16 or 1/4 inch aluminum may be installed on the top and bottom of the springboard nose with screws or through flathead bolts with nuts on top or bolts tapped into the bottom plate to increase strength. A plastic washer four inches in diameter may be installed between the bottom plate and the yoke/chock to reduce friction in the steering.

4.12 RUNNER CHOCKS: Make as shown except it is recommended to move the holes centers closer to the vertical legs for increased resistance to bell mouthing. The chocks may be riveted or pinned to lower plate (new) so the chock is one assembly. The 3/8 inch bolt holes should, of course, all match top and bottom. Teflon may be glued to the runner mating surfaces to reduce galling and friction. Inside center bolt holes which are used to secure the whisker stay and side shroud tangs are normally drilled to size. Other holes may be frilled oversize to allow accurate, parallel side runner alignment, dowels 5/8 or 3/4 inch diameter may be glued in the plank ends from chock tightening. Carriage bolts with head down set into squared chock holes may be used to make chock alignment quicker and easier. Whisker stay tangs may also be inlaid into the bottom plate so they may be next to the plank at assembly. Coarse wet sandpaper glued back to back or a similar abrasive material may be installed between the plank and chock assemble to hold the chocks in place and in alignment. Chocks may be epoxy glued to the plank but could make later realignment difficult.

4.13 STEERING RUNNER AND MAIN RUNNERS: Make as shown using spring or high carbon steel (440 stainless is not allowed). To resist a tendency for wing aluminum angles crack, a heavier and wider aluminum angle may be used. Wings may be bolted on with 1/4 inch diameter bolts and nuts to suit the builder. The front runner should have a front or rear hole suitable for attaching a removable or fixed parking brake (spike). Runners should have an edge with hardness of 50 Rockwell C or higher and sides should be flat-not bowed. Welding hard metal to the cutting surface is acceptable within the five inch height. Runner crown and sharpening angle(s) are the skipper's option. Runner may be plated to resist rusting.

4.14 RUNNER BOLTS: Should be of hard steel to resist grooving, and threads should bear as little as possible on the snag runner bolt holes in the chocks. National fine, hex head, hard aircraft bolts with nylon nuts are usually used.

SHEET 5 - PROFILE

5.1 CAM ACTION CLEAT: Any cam cleat without a fair lead may be used, or none at all.

5.2 STEERING CABLE: Larger cable may be used with tumbuckles inside the fuselage or at the steering yoke. A toggle action is desired at the yoke to prevent accidental damage to swage terminals if used. Steer cables may be crossed to suit aircraft pilots. Steering cables tend to stretch due to springboard action and may be loose ends for the same reason as above. Cable size and type is optional.

5.3 FRAMING AND WHISKER STAYS: The same toggle action is desired at both ends for the same reason as above. Cable size and type are optional.

5.4 FORESTAY (SHROUD): 7 X 19 or 1 X 19 cable up to 3/16 inch diameter may be used. 7X19 coils easier but is less strong than 1X19. Length is established with sheeted boom (with sail hoisted) level and the tumbuckle pin near the middle.

5.5 SIDE STAYS (SCHROUDS): 7 X 19 or 1 X 19 cable up to 5/32 inch diameter may be used. Length is established with mast vertical and the tumbuckle pin in the bottom hole or higher.

5.6 MAST DIAMOND CABLES: Any cable may be used at the owner's option. A diameter of 5/32 inch 1X19 galvanized steel is preferred inch it has less stretch than 7X19 and 1X19 stainless of equal diameter. Provide ample length to ease or take up the tumbuckles in order t o achieve desired mast bend. Most masts that fail are on the lead boats giving the expression, "The more the mast lays out, the faster you go." This certainly is not always true, but it is more often than not.

5.7 MAIN SHEET: Size and length is the owner's option. How ever the cockpit bitter end must be secured while racing. (Most skippers tie it to the tiller line.)

5.8 TILLER LINE: An abrasive resistant synthetic line, size and length to suit builder, may be installed in lieu of the tiller cable.

5.9 TELL TALES: Tell tales may be applied to the shrouds or sail at owner's option.

5.10 MAINSAIL (CLARIFICATION OF THE SAIL PLAN):

5.10a Material -The sail shall be single ply and must be made of 100 woven Dacron material.

5.10b Window - Visibility and tell-tail windows are allowed in several sections. The total size of all windows must not exceed 800 square inches.

5.10c Numbers—The sail shall display the Renegade insignia and sail numbers which must be assigned by the Renegade Class Secretary.

5.10d Batten Pockets - Batten pockets are usually four (4) inches wide and are usually formed by overlapping Dacron panel widths of thirty-two and a half (32 1/2) inches. Batten packets shall be parallel to the foot of the sail. The upper edge of the upper batten pocket shall be within a distance of twenty-four (24) inches and thirty (30) inches, measured from the center of the halyard pin hole ninety (90) degrees to the batten pocket. The lower edge of the lower batten pocket shall be within a distance of ten(lO) inches and twentyfour (24) inches, measured from a line between the centers of the tack and clew pin holes ninety (90) degrees to the pocket.

5.10e Headboard - The maximum total width of the head of the sail may not exceed five (5) inches measured from the aft edge of the luff tunnel rope. The headboard plates shall have a maximum width of four and half (4 1/2) inches, allowing one half (1/2) inch space between the plate(s) and the (projected) inside edge of the luff tunnel rope. Halyard pin-hole centers must be within one (1) inch of the top of the sail, and the aft halyard pin-hole center may not exceed two and a half (2 1/2) inches from the aft edge of the luff tunnel rope.

5.10f Tack and Clew Plates - These plates may not extent past the edge of the sail or the projection of the inside edge of the luff and foot tunnel ropes. Tack and crew pin-hole center location may not be more than on (1) inch from the edge of the sail or from the projection of inside edge of the luff and /or foot tunnel rope.

5.10g Girths -Measurements for the girths are to be taken from the inside edge of the luff tunnel rope.

5.10h Measurement - The mainsail shall be measured flat and free of all wrinkles. The center of grommet to grommet or hoisting eye (pin hole to pine hole) measurements as depicted on the sail plan remain unchanged. The mainsail clarification notes above are intended to define the allowable dimensions of the sail outside the measurement points and to prohibit alteration of the originally intended sail shape through extreme placement of upper and lower batten pockets
.

5.10i Mainsail Battens - Batten material, thickness, width, shape and method of holding in the batten pocket is owner's option.

5.11 Ballast: Weights may be permanently installed with epoxy, fiberglass, or other means, but portable ballast may never be used at any time during Renegade races.

GENERAL NOTES:

(1) Prior to starting construction, it's a good idea to review all the plans, notes to the plans, the SCIENCE AND MECHANICS magazine article dated February 1951 (obtainable from the Renegade Secretary), and to visit with someone who has built a Renegade. They will be happy to help you.

(2) Wood types other than those noted may be used, but must meet the drawing intended thickness and dimensions.

(3) Wood surfaces may be epoxied prior to painting in order to seal the moisture content.

(4) Repairs and reinforcement of components with resin reinforced glass, Kevlar and carbon is allowed, but not as a significant substitute for wood.

(5) Fasteners and pins are at the owner's option. Heads and treads are optional.

REVISION NOTES:

Revision 0:	Original Draft
Revision 1:	Final draft distributed to members February 1997
Revision 2:	Added policy statement, removed tell-tail window conflict, disallowed 440 stainless steel runners material, clarified mainsail measurements and tolerances upper and lower batten location, clarified Technical Committee terms, clarified plans and guidance conflict resolution and Technical committee members(s) terms.
Revision 3:	Include protest and award procedures in the Policy Statement
Revision 4:	October 2001 Increased lower batten pocket position tolerance. Reformatted document to correspond with the original plan sheet (JS).
Revision 5:	January 2003 Decreased maximum height of lower batten pocket position
Revision 6:	December 2003 Updating on Material Source Page 10
Revision 7:	December 2007 Removed table of Tech Committee on Page 2 and replaced with "Refer to Renegade By-Laws & Constitution for current committee members."
Revision 8	December 2009 Modified Policy Statement. Added a paragraph to clarify the Renegade philosophy. Removed sentence that read "Should a protested feature ***not add significantly*** to the boat's speed potential, the protest must be disallowed and the feature may be or may not be added to the Renegade Plan Guidance Information Sheets". Adjusted the procedure to appoint Tech Committee members to match IRIYA By-Laws
Revision 9	December 2022 Modified **5.10b Window** - Visibility and tell-tail windows are allowed in several sections. The total size of all windows must not exceed 800 square inches.

THE FOLLOWING SOURCES FOR MATERIAL MAY BE CONSIDERED

1. Bulkhead templates may be borrowed from the Class Secretary.

2. Sitka Spruce (Mast and Spar Grade)

a. Aircraft Spruce & Specialty Co.
P.O. Box 424
Fullerton, CA 92632
Phone: (800) 824-1930
www.aircraft-spruce.com

b. McCormick Lumber Company
3156 Milwaukee Street
Madison, WI 53708
Phone: (608) 244-4741
www.mccormicklumber.com

c. F. Scott Jay & Company
P.O. Box 482
Millersville, MD 21108
Phone: (301) 987-6800

d. M.L. Condon Company
250 Ferris Avenue
White Plains, NY 10603
Phone: (914) 946-4111

e. Wicks Aircraft Supply
410 Pine Street
Highland, IL 62249
Phone: (800) 221-9425
www.wicksaircraft.com

3. Aluminum Luff, Mast Tunnel, Mast Step Extrusion Gooseneck/slide

a. Paul Krueger
3027 Siggelkow Road
McFarland, WI 53558
Phone: (608) 837-5121

4. Mast Step Ball, Socket

a. Jerry Simon
3788 Highridge Road
Madison, WI 53718
Phone: (608) 837-8199
Simonized13@yahoo.com

5. Blocks Harken Blocks available from:

a. West Marine
P.O. Box 50050
Watsonville, CA 95077-5050
Phone (800) 262-8464
www.westmarine.com

b. Defender Industries, Inc.
42 Great Neck Road
Waterford, CT 06385
Phone: (800) 628-8225

6. Aircraft Hardware

a. Aircraft Spruce & Specialty Co.
See 2a above

b. Wicks Aircraft Supply
See 2e above

7. Sails

a. Quantum Sails Detroit
Ed Reynolds
38807 Harper Avenue
Clinton Township, MI 48036
586.468.1488
Email: edreynolds@quantumsails.com

b. North Sails Zenda
Jim Gluek
PO Box 2
N 598 Zenda Road
Zenda, WI 53195
Phone: (262) 275-9728 |
jim.gluek @ melges.com

c. North Sails (Shore)
Henry Bossett
2422 Route 34N
Manasquan, NJ 08736-1808
Phone: (732) 528-8899
Henryb@sales.northsails.com

d. Doyle Boston Sailmakers
120 Michigan Ave.
Pt. Edward, Ontario
Canada N7V 1E6
Tel (519)344-5236
spike@doyleboston.com