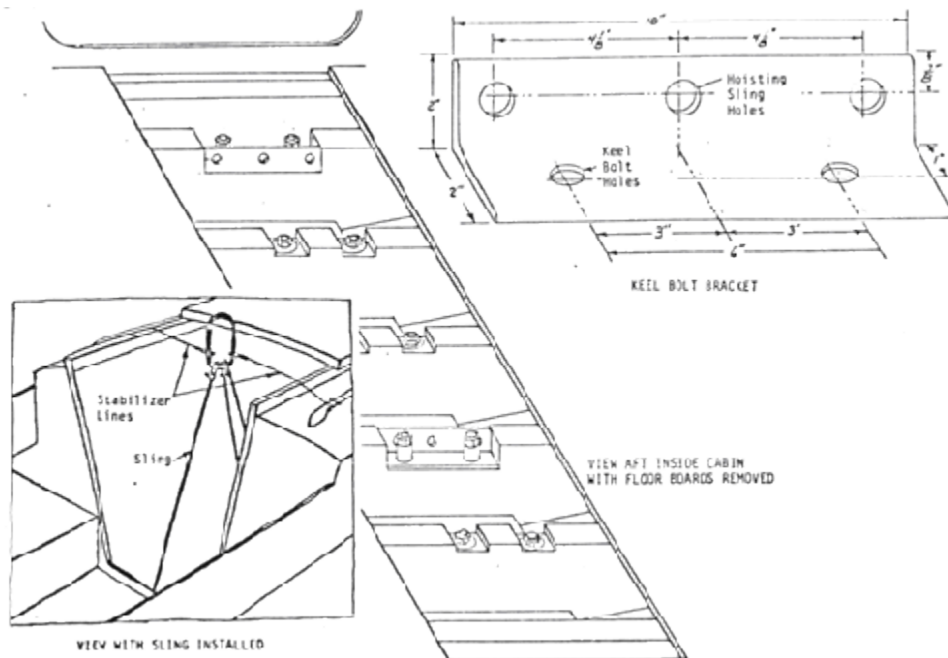


Hoisting arrangements

The Thunderbird can be hoisted into or out of the water conveniently and safely using a simple sling shackled to the keel bolts. This type of approach avoids a number of problems that may be encountered when using a conventional pair of bands under the bottom of the boat. For the Do-It-Yourselfer, the keel bolt technique is both simple and economical. Illustrated in the sketches is the hardware and technique in use by the Seattle Fleet since 1973. Several dozen boats have the brackets permanently installed. Other boats have been lifted with two inch wide temporary brackets. While the hardware design presented is for a wood boat with minor modifications it may be used in a fiberglass boat.



Brackets may be made from 2" x 2" x 1/4" angle stainless steel alloy 304. Keel bolt holes are 3/4" diameter which is oversize but an adequate fit for the standard 5/8" keel bolts. If you make these brackets be sure to check your keel bolt diameter and the center-to-center distance between bolts. Variations should be expected. Hoisting sling holes are also 3/4" diameter. The floor timbers are cut away to make the top of the installed bracket flush with the top of the timber. The bracket then provides support for the floor boards. Reducing the height of the floor timbers has not caused any structural problems. It may be necessary to use spacers (or a stack of washers) under the keelbolt nuts if the threads on the bolts do not extend to the surface of the bracket. Upon installation the brackets were bedded down with a flexible sealing compound. The sling used in Seattle has three legs each made of 7/16" diameter galvanized steel cable. Using this size cable two legs are more than adequate for lifting a T-Bird. The third leg was an unsuccessful attempt to get additional stability. Thimbles are swaged into each end of each leg. Finished length is 54" eye-to-eye. A 5/8" shackle is used at each end of the cable. They tie the legs to a forged steel ring installed at the top of the sling. When lifting and the sling taut, the bottom of the ring is at main hatch height. When in use the sling ring will position itself about 20 inches forward of bulkhead 4 (Forward Bulkhead in the cockpit). That is about the center of the main hatch. Boats with the standard pop-top will have to remove their boom and fold the main hatch forward against the mast. With or without the mast in the boat there is a tendency for the boat to tip side-to-side. The sling Shackle bolt centerline is slightly below the boat center-of-gravity and any unbalance will cause the boat to tip until the sling~ bares against the side of the hatch way. Use of a light stabilizer line, 1/4" or so, as illustrated will keep the boat horizontal under all conditions. A number of variations of this technique are in use. In Los Angeles ring nuts were installed temporarily to provide attach points for the Sling. Care must be used to avoid spinning the keel bolts and creating a leakage path. In San Diego a very large diameter nylon rope is used as the sling. It acts as a shock absorber for a soft ride. In Victoria a one leg sling is used in conjunction with a steel plate attached to the keel bolts. All these variations work. They all avoid the potential problems of bands under the boat.