

THE EVEN KEEL

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Torpedo Bulbs Provide Solutions

MARSKEEL TECHNOLOGY, the front runner in Keel production, has developed a cost effective, yet practical, alternative to complete Keel refits. **MARSKEEL Torpedo Bulbs**, an innovative Keel modification concept, provides enhanced performance and stability, for the performance oriented sailor, or draft reduction for the cruising enthusiast.

For over a decade sailors have been asking **Mars Metal Company** for the solution to these problems. Many of these sailors wish to redesign and replace their boat's entire Keel. With bulb technology, this costly procedure becomes unnecessary. The origin of lead Bulbs was developed by **MARSKEEL TECHNOLOGY** combining a number of high tech in house Bulb designs. The result is a hydrodynamic Bulb section that is cast in two pieces, contoured to the boat's Keel foil, that are attached to the existing Keel at the tip cord, by means of through bolting.

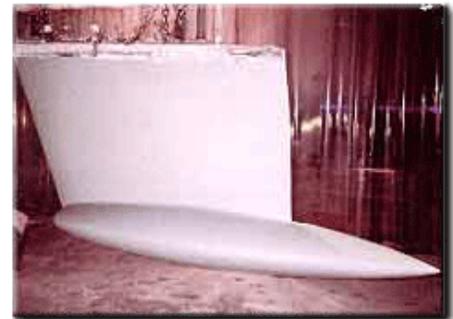
MARSKEEL Torpedo Bulbs are available in various weights and are custom designed to meet the specific needs of geographic sailing conditions and individual craft characteristics. Performance oriented sailors will benefit from the addition of Torpedo Bulbs that add stability, reduce drift and heeling angle, providing increased forward speed. For the serious cruiser Torpedo Bulbs provide draft reduction at a fraction of the cost of a complete Keel retrofit, while maintaining the craft's stability, righting moment and overall performance.

MARSKEEL Torpedo Bulbs are available in weights of 50 pounds to over 1,000 pounds per side. To increase stability, in most cases, an addition of 10-15% more ballast will correct even the most tender sailboats. A template, provided by the customer (of the Keel base after cutting) ensures that the contoured Bulb cast, matches the Keel's tip cord.

The Bulbs run forward and aft incorporating the entire length of the shortened Keel's tip cord. The Bulbs are positioned horizontally and parallel to the water line. If desired, the Bulbs are made to travel aft of the trailing edge, increasing the Keel's lateral resistance, thus enhancing performance.

MARSKEEL Torpedo Bulbs come fully bored and countersunk with the necessary high grade 1/8 Stainless Steel threaded rods, hex nuts and flat washer hardware for easy attachment to the Keel. The Torpedo Bulb is faired to the existing keel, primed, and finished with a coat of anti-foul paint.

The completed draft reduction, maintains or enhances performance, while providing the boat owner a more versatile craft.



The Keel of 42' J-130, with a Torpedo Bulb through bolted, faired, primed and ready to be installed. The original draft of 8' 5" was reduced by 24" to 6' 5", allowing the boat's owner greater cruising freedom in the Cayman Islands. The 24 inches of Keel removed weighed 2436 lbs. while the added Torpedo Bulb weighed 3050 lbs.