

TAKACAT

Cavitation and Water Kick Back Reduction Tips

CAVITATION ISSUES

In 2020 Takacat introduced the Drop-down Removable Tube Transom[®] This was introduced to assist in eliminating cavitation and has been very successful.

If you have model with the straight top rail on Removable Tube Transom[®] we have a kit that consists of new top and bottom rail and transom boards and can be retrofitted to older Takacat Models.

The solution prior to this was to fit a ¹Permatrim Foil and having the propeller tips ²“Cupped”

With the new Drop-down Removable Tube Transom[®], a 15" short shaft is the optimal shaft length. Then the anti-ventilation or cavitation plate is located slightly below the so-called keel line, as can be seen in the picture below.



¹ Boats that suffer from cavitation issues will benefit greatly from using a Permatrim Foil. By increasing the size of the factory cavitation plate, by up to four times, and the additional benefit of the turned down sides, the foil reduces the chance for the propeller to draw in air that will create an air pocket around the Propeller - one of the causes of cavitation/ventilation. By having a larger cavitation plate & the turned down sides, the Permatrim Foil condenses/compresses the water around the Propeller helping eliminate the chance of air being drawn into the Propeller.

² Cupping or adding a cup is a pretty simple geometric change of the trailing edge of the propeller blades. This is done by bending the propellers blades' trailing edge towards the pressure face (blade surface facing aft) thus resulting in an edge with a noticeable curve. This curved area is called “cup”. Cupping the propeller provides a lot of benefits for relatively small changes to the blade form. Adding a cup changes the effective or nominal pitch by essentially adding camber to the blade shape. This camber helps reduce cavitation and increase performance.

WATER KICK BACK / SPLASH BACK ISSUES

Every outboard is equipped with at least one water stop plate on the back of the shaft to prevent the water from rising up the shaft.

For engines from 8 hp, there are manufacturers who have equipped their engines with 2 x water stop plates. This is advantageous because the upper plate acts in the lower speed range and the lower plate in the upper speed range. In addition, the position of the lower plate has the effect of keeping the circular dispersion of the spray water in the lower transom area. In summary, this means that an outboard with a 15" shaft, 2 x water stop plates and the lowest possible weight is the optimal solution. An additionally installed Permatrim Hydrofoil not only results in a larger sliding window but also lifts the waterstop plate above the water surface earlier so that it can take effect. Especially for outboards with a 17" short shaft and only one waterstop plate at the rear, the installation of a hydrofoil is a must, so that no upflowing water overflows the transom via the radial shaft shape.

Depending on the outboard model, shaft length and shaft design, more or less splashing water may occur in the stern area. Water Kick back can be reduced by using an EVA foam wedge (5 x 10 x 15cm - height/width/depth - example). Cut a 10cm wide piece of the EVA foam wedge and position it centrally between the underbody and the high-pressure floor, with the thick 5cm side facing the rear. Make sure that the wide black deflector tongue is under the transom plates and not wedged between the transom plates and the high pressure floor.