



Chesapeake Tartan 30 Association

PROPELLER IMPROVEMENT

John and Nancy MacBride, T-30 #495, *Kestrel*, November 1995*

We bought *Kestrel* in Detroit in 1991, receiving a *Tartan 30 Manual* and back issues of *The Hook* from the former owner. We sailed out of Lexington, Michigan, on southern Lake Huron for three years, then moved the boat to Blind River, Ontario, for the 1994 season. We seem to be the only CT30A members on the Great Lakes or members with a home port outside the US, although there are plenty of Tartan 30's on the Great Lakes. Blind River is toward the western end of the North Channel of Lake Huron, a rugged, lightly inhabited part of the Great Lakes with rocky, evergreen covered islands and sparkling, clean fresh water. It is considered by those who like solitude and the cry of the loon to be the best cruising area in the Western Hemisphere. We think the Chesapeake is scenic too, and we admire the camaraderie of the Tartan 30 Association and the mechanical services available to you. In the North Channel the weather is challenging, as is the navigation to the rock-strewn coves and anchorages. We've spent two summers here. Our T-30, built in 1977, is well-equipped and well-preserved; she holds her own sailing, and has served us well as our summer home.

One problem plagued us until this year, and our final solution may be of interest to other T-30 owners. From the time we acquired the boat, while motoring, the shaft developed such vibration that we could not run it above 1200 or 1300 rpm. Moyer Marine, and other sources, say the Atomic Four should run at least 2000 rpm, for greater efficiency and power. In still water at 1300 rpm, the engine could push the boat at about 5.75 knots, but the boat quickly lost speed when motoring against wind and waves. We replaced the cutlass bearing, had the shaft realigned several times, then replaced the shaft and had the propeller balanced and polished. None of these moves, at considerable expense, made any difference. We were still subject to intense vibration running at more than 1300 rpm.

Our boat came with a fixed, two-bladed 12 x 9 propeller. There was no bearing between the coupling and the stuffing box, although diagrams in the manual seemed to suggest that there should be, and we talked to several other owners who had intermediate pillow block bearings. (Since writing this I find that others have dealt with the subject of pillow block bearings. The bottom line is that, if your boat has a 1 inch stainless steel driveshaft, a pillow block bearing is not needed.) We checked the *Tartan 30 Manual* and found that it specified a 12 x 9 prop on one page, a 12 x 8 on another**. A manual for the Atomic Four specified a 10 x 6 prop. Michigan Wheel, the manufacturer of my prop, also said my prop was too large, and the pitch too great. They said that the main cause of shaft vibration is too little space between the prop and the hull, indicating that the space between the hull and the tip of the prop should be at least 15% of the prop diameter, or in my case 1.8 inches. My actual clearance was 1.5 inches. Michigan Wheel referred us to a prop shop in Detroit who said they could supply an 11 x 7 three-bladed prop and suggested we try that for this season, then have it cut to 10 x 6 next winter if it did not solve the problem. Using a plan from the book *This Old Boat*, I had a puller made and replaced the prop with the 11 x 7 three-blade.

The improvement in performance and speed was immediately apparent. The engine will now run at 2000 rpm without excessive vibration. It will do at least 6.5 knots in flat water and does not suffer as much speed loss as before when motoring into wind and waves (although we have not yet encountered more than about 12 knots of headwind when motoring). In reverse, it backs straight at moderate speed and turns in the direction of the rudder at higher speed — a decided improvement. Sailing head to head with other boats of equal or greater length, *Kestrel* more than holds its own (a couple of weeks ago we walked away from a C&C 30 on a beat). We sense little additional drag with the extra blade. Being naturally conservative, we have not attempted to motor at more than 2000 rpm. All in all, the smaller, three-bladed prop of less pitch seems to have solved our vibration problem and significantly increased performance.

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** Both of these specifications came from Tartan Marine Co. — ed