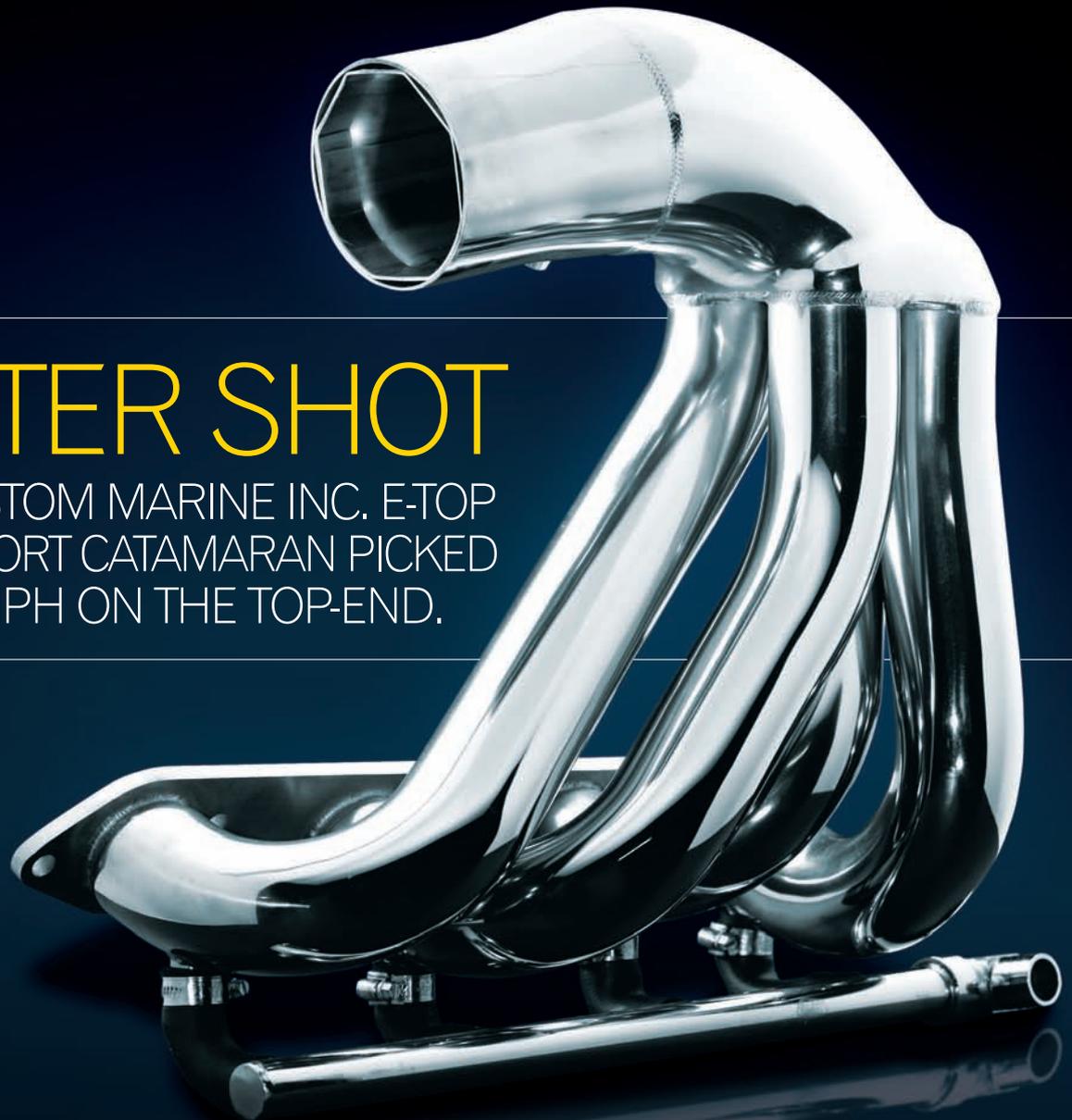


# BOOSTER SHOT

WITH NEW CUSTOM MARINE INC. E-TOP HEADERS, A SPORT CATAMARAN PICKED UP NEARLY 3 MPH ON THE TOP-END.

STORY  
GREGG MANSFIELD

PHOTOS  
ROBERT BROWN



Whether you own an old 23-foot Baja or an offshore race team, every boater has a budget. Some budgets are larger than others and inevitably you'll spend more than you planned.

Like most Americans, your boating budget is probably smaller this year. You've ruled out a new boat and replacing the engine but you long for more performance. If you own a boat that has a MerCruiser 496 Mag or Mag HO engine, Custom Marine Inc. (CMI) offers an affordable header system that most guys with basic mechanical knowledge can install.

The E-Top is a bolt-on replacement for the cast-iron manifolds on the big-block engine. Not only do the stainless-steel headers add a custom touch to the stock engine, they reportedly increase horsepower by 30 ponies or more.

"It's an all-around performance upgrade for the 496," said Tom Veronneau, West Coast sales manager for CMI. "The other key thing is you don't have to open up the engine and do anything that's going to make it unreliable. This is a true bolt-on, clean kit that's not going to (hinder) your warranty or the engine's reliability."

We selected a Nordic Boats 27 Thor walk-through as the test bed for the new E-Top headers. The sport catamaran had a 496 Mag HO engine and a stock Mercury Bravo One 15 1/4" x 28" propeller.

With two people on the boat, the stock package had a top speed of 68.6

mph at 4,900 rpm. It took 5.2 seconds to get on plane, and in 15 seconds it was running 44.5 mph. At 4,000 rpm, the Nordic cruised at 48.5 mph.

After the installation was complete, the sport catamaran—spinning the same 28"-pitch propeller—had a top speed of 71.1 mph at 5,000 rpm. While top speed improved by 2.5 mph, the biggest gains came in the acceleration department.

The boat was on plane in 4.6 seconds (.6 seconds better) and reached 47 mph in 15 seconds (a 2.5-mph improvement). Lead test driver Bob Teague noted the headers provided a louder and deeper exhaust tone at idle but the noise level at speed remained about the same.

Although CMI said it is generally seeing a 3- or 4-mph gain from the new headers, Veronneau said a new deck boat from Eliminator Boats picked up 7 mph. Consumers who install the E-Top kit will likely have to go up in prop pitch to realize true performance gains.

"It all depends on the boat," Veronneau said about changing props. "If your boat is on the cusp and you change the headers, you might need to get a new prop."

We followed John Teague of Teague Custom Marine as he installed the E-Top kit, which retails for \$3,700. The installation was fairly straightforward and took a solid three hours to complete.

Here's a look at the header replacement.

## GETTING STARTED

After removing the hatch actuator to get better access to the engine compartment, John Teague took off the plastic engine cover. His first order of business was to remove the heat sensors on the manifolds.

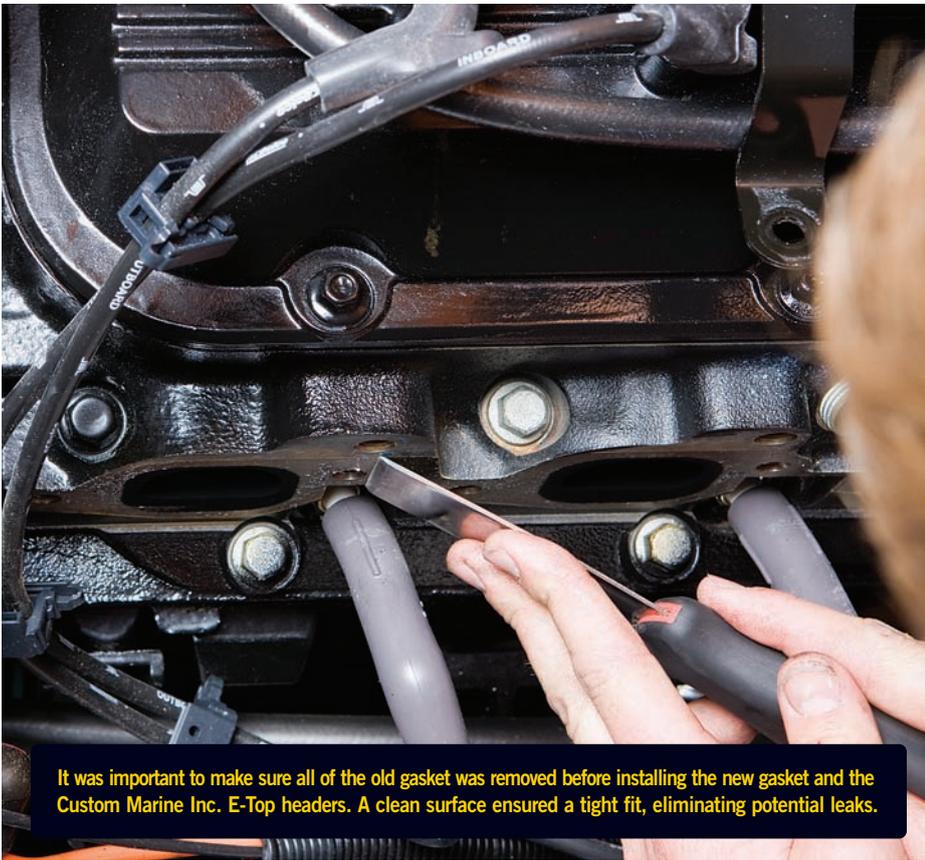
From there, CMI recommends removing the coolant hoses from the bottom of the log manifolds. With the hoses off the manifolds, the lower hose was blocked with a stainless-steel plug that came with the kit. It's an important step, and if not done, it could mean an engine compartment full of water.

With the shift bracket bolt removed (as well as the heat sensor) from the manifolds, Teague popped off the spark plug wires so not to damage them when removing the heavy cast-iron manifolds.

Probably the toughest part of the project was removing the manifold connectors from the exhaust tubing. Even with the clamps released, Teague had to use a pick to break it loose, then twist and pull to free it. Because there was plenty of space, it was a good time to remove the spark plugs and replace them. **continued ▶**

1) Before taking off the plastic engine cover on the big-block engine, John Teague loosened the clamps that held the exhaust hose to the collector. 2) Afterward, the heat sensor was removed from the manifolds on both sides of the engine. 3) It didn't take long to take off all of the coolant hoses that were connected to the cast-iron manifold. 4) With the screws out, the stock manifold, while heavy, was easy to remove from the engine compartment. The process was then repeated on the opposite side.





## PREPPING

With both manifolds removed, Teague diligently cleaned the gasket surfaces on the engine to ensure a tight fit. The kit also requires removing the shifter bracket mounting bolts while leaving the shift cable intact. He replaced the shift plate, reusing the rear mounting bolts.

The oil filter had to be disconnected and a small bucket was used to catch the oil. Teague used a screwdriver and a hammer to pop a hole in the top of the filter to allow the oil to drain back through the lines. The filter was going to be replaced anyway.

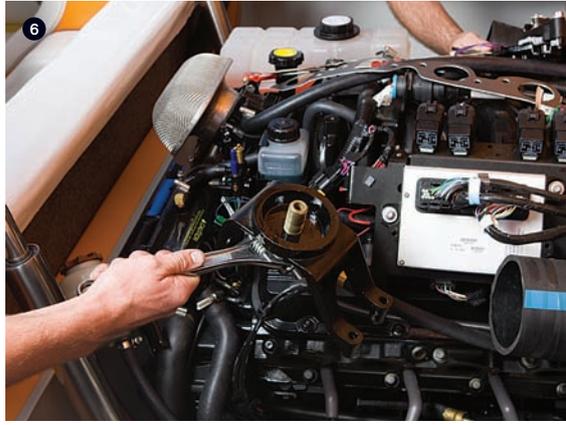
The kit included a new bracket that allowed the power-steering reservoir to be mounted adjacent to the oil filter. Reusing the old O-ring and fitting, he lubricated the flat O-ring with motor oil and took care to make sure the oil filter was seated properly so it wouldn't leak.

Before Teague could install the new stainless-steel headers, he had to remove an air control bracket.

To make the process of hanging the headers easier, Teague did much of the work outside of the boat. He installed the heat sensors on a workbench and then fitted the gaskets. A smart move was to notch the gasket on the outside screws, which made the installation a breeze. continued ▶

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5) After disconnecting the oil filter, a bucket was used to collect the oil. A nifty trick was to use a screwdriver and a hammer to punch a hole in the top of the oil filter, allowing the oil to drain back into the engine. 6) The new oil filter/power steering reservoir bracket was mounted back into proper position. 7) Sometimes it's easier to do work outside the boat than inside of it. That's why Teague chose to install the heat sensors in the new headers on the workbench in the shop. 8) After making sure the new gasket fit properly, Teague notched the gasket to speed up the installation process. The header was hung by the two outer bolts and then Teague dropped in the gasket before installing the remaining bolts.

# Why Settle For Less?



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## INSTALLATION

Having put in new spark plugs, it was time to hang the headers. (The spark plugs can be installed after the headers to prevent the plugs from being broken.) Not only were the new headers lighter, they added a custom look to the production-built 496 Mag HO.

Teague fitted the collector into the black exhaust hose (with some twisting) and then hung the headers by the two outside bolts. With the headers properly positioned, he slid in the gasket, installed the remaining screws and secured the headers. The clamps for the collector and exhaust hose were then tightened.

The installation required trimming some length off the cooling hoses to connect them to the headers. The spark plug wires also were reattached.

Teague opted to wait until the end of the project to relocate the ECU rather than earlier in the process as noted in the CMI-provided instructions. After loosening some screws and grinding, he got the bracket to fit. (CMI has since modified the kit so the ECU doesn't have to be relocated.)

After checking to make sure the hoses were properly secured, Teague reinstalled the engine cover.

CMI recommends starting the engine and checking the hose connections. It's a good idea as Teague found a line that wasn't fully secured. He ran the boat for about 10 minutes, allowed the engine to cool and checked the header bolts for tightness.



9) It took some twisting and turning to fit the collector on the exhaust hose but the E-Top header dressed up the production engine. 10) Cooling hoses had to be trimmed before they were reconnected. 11) Out gathering the final test numbers, Bob and John Teague found the new headers improved the Nordic 27 Thor's top speed by 2.5 mph.



## OVERALL

For a few hours of wrenching, the E-Top kit delivered decent performance gains at a reasonable price. While many people may be inclined to hire a mechanic to do the job—especially if they own a twin-engine boat—the project is worth tackling on your own.

The time you'll spend over a weekend doing the install will be worth it when the boat runs a couple of ticks faster on your local lake. 📌

## CONTACT INFORMATION

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## INSTALL BY THE NUMBERS

<b>BOAT</b>	NORDIC BOATS 27 THOR
<b>ENGINE/HORSEPOWER</b>	MERCUISER 496 MAG HO/425
<b>PROPELLER</b>	MERCURY BRAVO ONE 15 1/4" X 28"

BEFORE		AFTER	
<b>TIME TO PLANE</b>	5.2 SECONDS	<b>TIME TO PLANE</b>	4.6 SECONDS
<b>ZERO TO 15 SECONDS</b>	44.5 MPH	<b>ZERO TO 15 SECONDS</b>	47 MPH
<b>SPEED AT 4,000 RPM</b>	48.5 MPH	<b>SPEED AT 4,000 RPM</b>	48.5 MPH
<b>TOP SPEED</b>	68.6 MPH AT 4,900 RPM	<b>TOP SPEED</b>	71.1 MPH AT 5,000 RPM