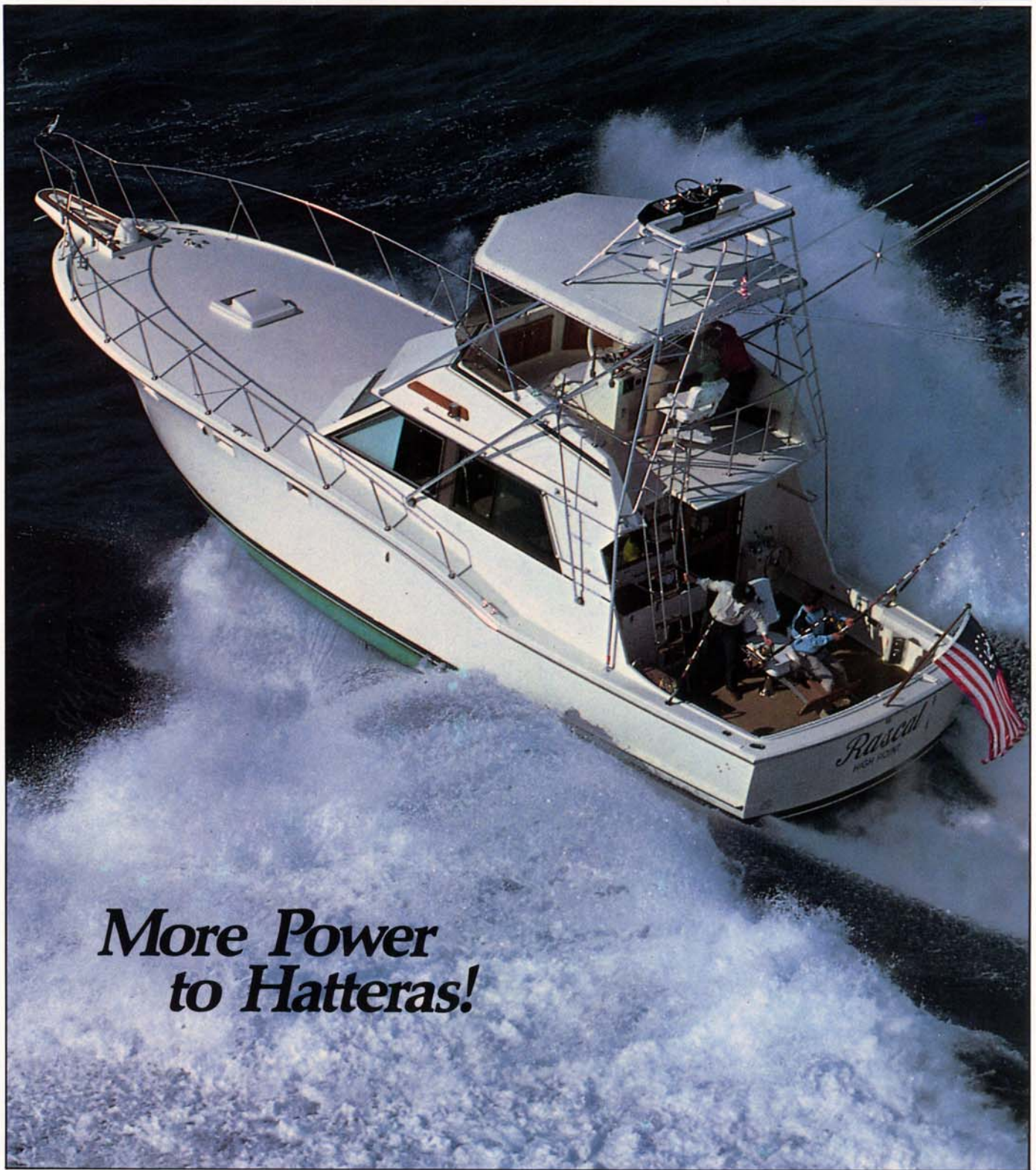
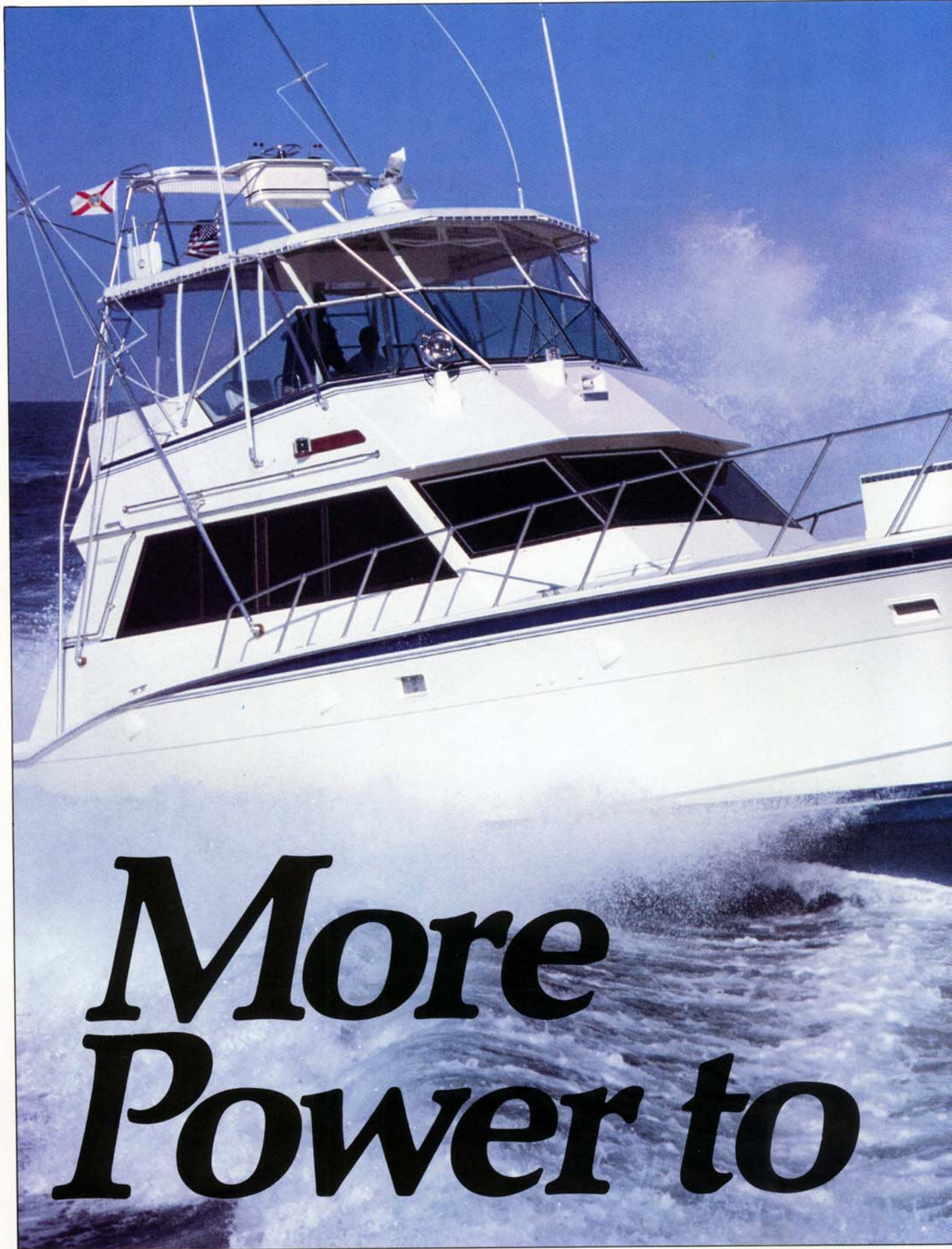


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BOATING



*More Power
to Hatteras!*



***More
Power to***



High performance options jazz up these famous convertibles.

The word in 1982 for the Hatteras convertibles is *High Performance*. It says so right on the side of the boat, and it's for real.

Now, it's not as if the standard Hatteras' are *low* performance—there are too many satisfied owners out there for that idea to be taken seriously. On the other hand, nobody was going to mistake a Hatteras for a Cigarette either. The fact is, there is a market for faster sportfishing machines, and giving the buyer what he wants is Hatteras' specialty. Lately, the tournament fisherman wants to get out there quicker. Okay, guy, you got it.

Not on just a model or two, Hatteras is offering a High-Performance version for every convertible from 43 feet up, excluding only the 37. That, as they say, pretty well covers the waterfront. And represents a lot of engineering, both on Hatteras' part and on the part of Covington Diesel.

This is basically a two-part story: One about engine changes and modifications; the second about structural hull changes. In addition I rode the 50 Convertible while BOATING Associate Editor Doug Schryver did his fuel flow/radar gun work, so we have some real numbers plus some seat-of-the-pants stuff to add to the story. Sneak preview: I was impressed.

Pure Power

If you want to go faster, you're going to need more horses. They are supplied by Covington, who lovingly "breathed on" a number of conservatively rated Detroit Diesel engines. Covington is a North Carolina Detroit Diesel Allison (DDA) distributor long associated with Hatteras. They're big, even if their name is not yet a household word. Covington says they deliver more Detroit Diesel pleasure-craft engines than any other GM distributor in the world. They haven't formerly pushed modified GM engines as have other distributors, but that has all changed now.

Hatteras has followed two paths to higher performance: One is to use the same engine size in a given hull, but to install a modified version of that engine which develops more power; the second path, of course, is to

Hatteras 55 Convertible shows off her new stripes, speed.

Hatteras!

BY DEX HART; Photographs by Roy Attaway



The 46 Convertible also has a newly-designed interior accommodation, including a canted queen-sized berth forward.

More

go bigger, as Hatteras has done in the 46 and the 60. Which course was followed depended on how much more power was deemed desirable—and on which larger engines were logical candidates.

When pulling more power from a given size engine, obviously more fuel is required, which means larger injectors. But you can't (or *shouldn't*) just increase injector size. That's a very inefficient way, when done as a solo action, to get more power—and is hard on the engine to boot. Here's a short summary of what Covington does to an engine:

Larger injectors. Yes, but selected and matched. Sound like Mickey Mouse? Consider DDA specifications for a 125mm injector: It must deliver, for each 1000 strokes, between 118 and 126 cc of fuel. Covington uses, instead, an injector they call the M-130. These are DDA parts, but they are selected and matched so that the injector delivers between 127 and 132 cc. Slightly higher, but the point to note is the narrower acceptance limits. A 5 cc range rather than 8 cc. You feed the engine more fuel, but you also do a better job of ensuring each cylinder gets the *same amount* of fuel. Just like those Anheuser-Busch Clydesdales, things go more smoothly and strongly when you drive a matched team.

When you add more fuel, you need more air to burn it. For higher airflow, Covington uses lower restriction air-pathway plumbing; modified design turbochargers add greater boost; intake blower drive ratios are changed to give more turns at the same engine rpm. Depending on the engine, they may add different bearings to handle increased load, and ditto for rings, connecting rods, and valves. The High-Performance version of the 12V-71TI has all of these, for example.

Pressures being higher, Covington goes to higher spec hoses to tie the turbocharger to the intercooler. And since more power means more heat, engine heat exchangers and oil coolers, including the gear cooler, get increased capacity. I don't want to put you to sleep with technical details, but you need to know that a lot of carefully integrated actions are required to increase delivered horsepower *reliably*.

What about the Warranty?

Good question. Fortunately, there is a fully satisfactory answer. You didn't think Hatteras would sell boats that couldn't be serviced by any authorized GM dealer, did you? Most of the changed parts are GM even if not normally used on that particular engine; some are from regular GM suppliers, but are versions not installed by GM on civilian engines. A few parts are fabricated solely for or by Covington.

Have a mechanical problem in Miami? The engine has a decal detailing the changes, as does the owner's manual. Also, DDA distributors have all been mailed spec sheets detailing service information and modification details. Yes, some parts may have to come from



Hatteras is quick to point out that the new High Performance program does not entail weight reduction. Well, not yet.

Power

Covington, but in these days of Federal Express and Puroator Courier, they'll get there just as soon as if they came out of Detroit.

But do you wait for repair approval? No. The deal works this way: GM tells all distributors it's okay to repair in-warranty engines with the Covington modifications. Should GM, for some reason, decide later that a repair was caused by an improper Covington change (hardly likely, but theoretically possible) GM will simply bill that warranty repair back to Covington. It's that simple, and almost invisible to the boat owner as being different from a "normal" DDA engine installation.

I've made up a table (see page 156) summarizing engine availability by model showing displacement and horsepower (*shaft* horsepower, as Covington only likes to talk about what's really available to move the boat). Percentage improvement in power for the High-Performance versions is also shown.

Note that the 60 Convertible has two step-up options, one a higher-output 12V-71TI and the other a larger displacement 12V-92MTI (this one is from Stewart & Stevenson, not Covington, but fits the stated warranty setup). Rounded retail prices for the standard boat and for the High-Performance version are also shown, again

with percentages, to allow you to compare roughly what it costs for what you get.

Hull Changes

When a boat goes faster, hull loads and stresses also increase. While Hatteras boats have never been thought of as other than super-sturdy, the firm has undertaken a major strength-increase redesign for *all* convertible hulls. The primary actions are two-fold: The hull sides, from chine up, are now a fiberglass sandwich construction, using end-grain balsa as the core material (the same method as has been used in Hatteras' deck and transom construction for some time).

The bottoms are also stiffer with the addition of numerous transverse members. Think of it as an egg crate, but now with room for a lot more (and smaller) eggs. The effect is to make each bottom "panel" smaller—and the bottom stiffer, of course.

When I rode the 50, the boat *felt* stiffer, more like a car with a "handling" suspension option. "Taut" is probably the best description. I was concerned that my knowledge of the changes was perhaps influencing my perception, but after talking with other experienced boatmen who had been aboard one or another of these hulls, I found my impression was widely shared.

Take note that these actions together were not intended as (and have not resulted in) a weight reduction. Some weight is saved in the hull sides; some is added to the bottom. Roughly a wash. Expanded experience with sandwich construction is likely to result in

MORE POWER

eventual weight reduction, however.

Sandwich construction is clearly superior to conventional layup single-skin fiberglass, in my opinion, giving either superior strength and stiffness at the same weight or a notable weight reduction—or a combination of the two attributes. Also on the plus side is increased noise and temperature insulation. Cored laminates are clearly the way to go for the future, and "Phase 2" of the Hatteras revolution no doubt will be a strong and on-going weight reduction program.

Future Shock

Personal opinion time. In years to come, buyers will have to give up some of their ideas of "traditional" boat construction techniques. A prime example is solid wood interior bulkheads and cabinetry. These have to shift to sandwich construction, probably with foam cores. Boats must become more similar in construction techniques to commercial jet aircraft, especially their interiors.

The reasons for the future similarity are identical. It costs money (fuel and larger engines) to haul around more

weight than necessary. To plane a boat is similar—in essence if not degree—to flying a plane. Only if we restrict our pace to displacement speeds can we be relatively indifferent to vessel weight.

Boat builders won't have to go to aircraft extremes (some airlines have actually removed the exterior paint from their fleet to save the weight of the *paint film*), but if the marine industry does its job, some of the changes will be mildly unsettling to traditionalists.

Other Changes

In the High Performance series, gone are the traditional 4-blade props. All are now 3-blade, cupped. Note, however, that the stronger engines have their power rated at the same 2300 rpm level as standard engines, across the board. On the 12V-71TI and 12V-92TI engines, another addition is the ZF hydraulic marine gear. Not that Allison and Twin-Disc are out of business, it was just that the combination of power capacity and compactness made the German box more desirable.

Marine gear reductions are the same whether standard power or high performance is selected. All reductions are

2:1 except for the 46 and the 55 where 1.5:1 is used.

Covington makes the following suggestions for operating rpm: 2300—for short duration only; 2100—for intermittent cruise; 1900—all-day cruise. Seems reasonable, and about the way I'd run any GM engine. These are *recommendations* and do not affect warranty coverage. Prudent owners, however, will listen and take heed.

Final Observations

The Hatteras High Performance program is impressive. Particularly so because of its application to the five convertible hulls simultaneously. Says a lot about engineering capability. In the accompanying instrumented test of the 50, there are some further comments about the bottom line of the program—how the boat feels and performs. They are, you will note, definitely favorable. The boats go faster with only a moderate fuel penalty (*no* penalty at one speed). And they feel great. In short, the "High Performance" label is for real—the program meets its objectives. ⚓

1982 HATTERAS CONVERTIBLES

	43	46	50	55	60	60
Engines						
Base diesel	6V-92TA	8V-71TI	8V-92TI	12V-71TI	12V-71TI	12V-71TI
Hi-perf. diesel	6V-92TA	8V-92TI	8V-92TI	12V-71TI	12V-71TI	12V-92MTI
Cu. in. each, base	552	568	736	852	852	852
Cu. in. each, hi-perf.	552	736	736	852	852	1104
Displacement increase	—	+ 30.0%	—	—	—	+ 29.6%
Power						
GM Shaft hp (2300 rpm)	425 hp	450 hp	550 hp	650 hp	650 hp	650 hp
Hi-perf. shp (2300 rpm)	500	650	650	825	825	975
Horsepower increase	+ 17.6%	+ 44.4%	+ 18.2%	+ 26.9%	+ 26.9%	+ 50.0%
Price (000's, rounded)						
Base price	\$260	\$280	\$368	\$466	\$568	\$568
Hi-perf. price	273	320	397	543	645	770
Price premium	+ 4.9%	+ 14.3%	+ 7.7%	+ 16.5%	+ 13.5%	+ 35.6%

BOAT TEST NO. 308

Just how good is it? Consider the 50...

The measured performance data tells a large part of the story. We tested the High Performance 50 in Biscayne Bay; the numbers on the standard 50 were supplied by Hatteras from data they measured five months earlier, in similar water depth (10-12 feet).

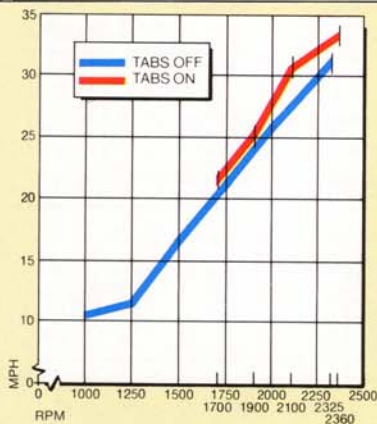
One large difference is that BOATING measured with no-tabs, our standard practice. Hatteras measured with tabs, as the 50 is one of those hulls that is actually faster with some tab applied.

We did experiment with tab position, and measured a with-tab maximum speed of 33.0 mph (28.7 knots), 6 percent higher than the no-tab 31.1 mph (27.0 knots) shown on the table. Hatteras-measured with-tab speeds are shown appended to the BOATING data.

BOATING tested with 5 persons aboard, Hatteras with 2. But the standard boat was slightly heavier with more fuel, a half-tower, and numerous options. The High-Performance hull was probably slightly lighter by 500 or 600 pounds, which you lose in rounding when you start from 54,000.

After noting these caveats, the fact remains that the performance is still very impressive. One item I specifically noted while playing with the numbers was that you can cruise at 2100 rpm in the High-Performance boat, at exactly the same speed and mpg which the standard boat can reach only at wide open throttle. And that's *without* adjusting for probable better tab-down performance. A nice plus for the High-Performance package.

On the other hand, if you want to run slower and match rpm to rpm, the High-Performance package burns more fuel. This is, of course, in full accord with the "no-free-lunch" theory. At 1900 rpm, for example, the recommended all-day cruise speed, the standard boat ran 18.5 knots, burning 37 gph. The High-Performance 50 ran 21.8 knots *continued on page 9*



Compare this curve with one opposite. Note relative quickness of H-P 50. BOATING's data in "tabs-off" mode only.

PROPULSION AND PERFORMANCE: Hatteras 50 High Performance

Standard power: Twin DDA 8V-92TI, with 736 cu. in. displacement, 650 shp, 4.84" bore x 5.00" stroke, 2:1 reduction, 32 x 34 cupped 3-bladed propellers.

Test power: As above

rpm	without trim tabs		% of speed	gph	% of fuel use	n. mpg	mpg	*range	angle	sound dB-A
	knots	mph								
1000	9.3	10.7	34	10.4	15	0.89	1.03	857	1.5	54
1250	10.1	11.6	37	20.7	30	0.49	0.56	467	4.0	62
1500	14.3	16.5	53	29.6	43	0.48	0.56	464	4.5	62
1750	18.2	21.0	68	41.1	60	0.44	0.51	426	5.0	64
2000	22.3	25.7	83	54.9	80	0.41	0.47	390	6.0	70
2250	26.0	29.9	96	64.8	94	0.40	0.46	384	6.0	71
2325	27.0	31.1	100	68.9	100	0.39	0.45	376	5.0	72

No-tab speeds measured by BOATING, five persons aboard, ¾ fuel load, minimal cruising gear.

Tab-on speeds*:

1700	18.6	21.5
1900	21.8	25.1
2100	26.6	30.6
2360	28.9	33.3

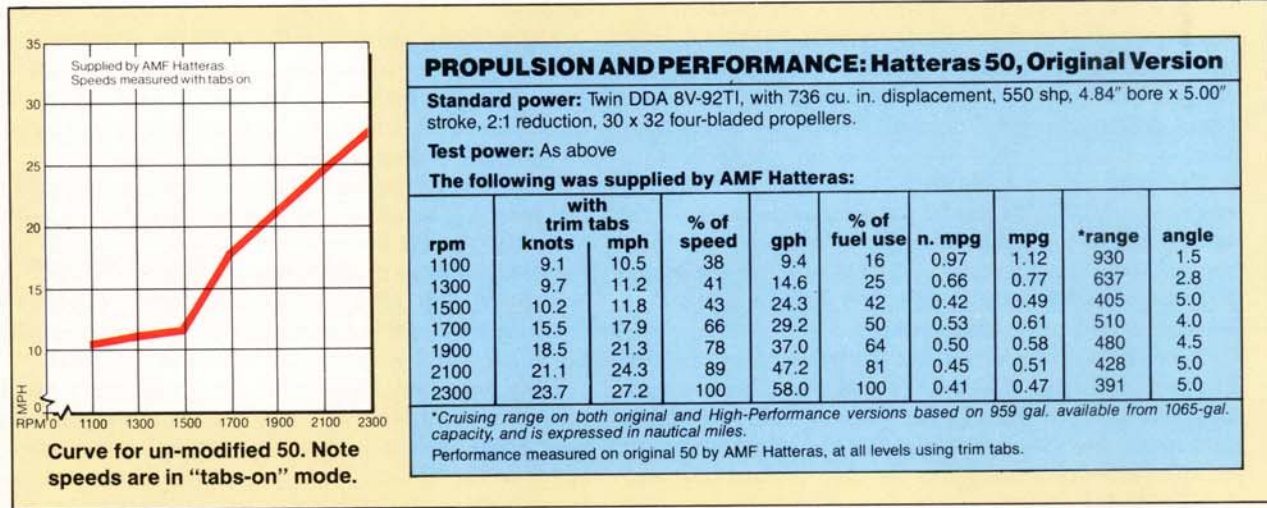
*Supplied by AMF Hatteras. Tabs set at fixed angle throughout range.

HATTERAS 50 CONVERTIBLE

ROY ATTAWAY



DDA diesels, rebuilt by Covington, send the High Performance 50 skimming. High bridge windscreen protects crew totally.



PROPULSION AND PERFORMANCE: Hatteras 50, Original Version

Standard power: Twin DDA 8V-92TI, with 736 cu. in. displacement, 550 shp, 4.84" bore x 5.00" stroke, 2:1 reduction, 30 x 32 four-bladed propellers.

Test power: As above

The following was supplied by AMF Hatteras:

rpm	with trim tabs		% of speed	gph	% of fuel use	n. mpg	mpg	*range	angle
	knots	mph							
1100	9.1	10.5	38	9.4	16	0.97	1.12	930	1.5
1300	9.7	11.2	41	14.6	25	0.66	0.77	637	2.8
1500	10.2	11.8	43	24.3	42	0.42	0.49	405	5.0
1700	15.5	17.9	66	29.2	50	0.53	0.61	510	4.0
1900	18.5	21.3	78	37.0	64	0.50	0.58	480	4.5
2100	21.1	24.3	89	47.2	81	0.45	0.51	428	5.0
2300	23.7	27.2	100	58.0	100	0.41	0.47	391	5.0

*Cruising range on both original and High-Performance versions based on 959 gal. available from 1065-gal. capacity, and is expressed in nautical miles. Performance measured on original 50 by AMF Hatteras, at all levels using trim tabs.

HATTERAS 50 BOAT TEST *(continued)*

(Hatteras data) and 49 gph (our interpolated 1900 rpm fuel flow). This means you get 18 percent more speed at the cost of 32 percent more fuel.

It's a trade-off but I predict most buyers will elect the High-Performance version. Let's face it, Hatteras knows its sportfishing market, and what those guys want is to go faster.

What numbers and graphs don't show is the *feel* of the boat. In the accompanying text I described the feel of the 50 as "taut." It is that. It also feels "quick." Running the boat is a continual surprise in that you have to keep reminding yourself that this is a 50 footer; it gives the feel of a smaller, livelier, speedier craft.

The 50 interior was described in the February 1981 *Boating Boards* and is basically unchanged. The test boat had the galley and a raised dinette in the forward part of the saloon, a change-option from the standard galley-down layout. I like the setup, and you get a third forward stateroom as the reward for giving up some saloon space. There's enough left over for most people, but prospective buyers will just have to study the layouts and follow their desires.

The 50 is a good looking boat. The detailing and engineering are typically Hatteras, first class all the way. Huge bridge with the biggest windshield I've come across lately. Standard are four air conditioning compressors totalling a

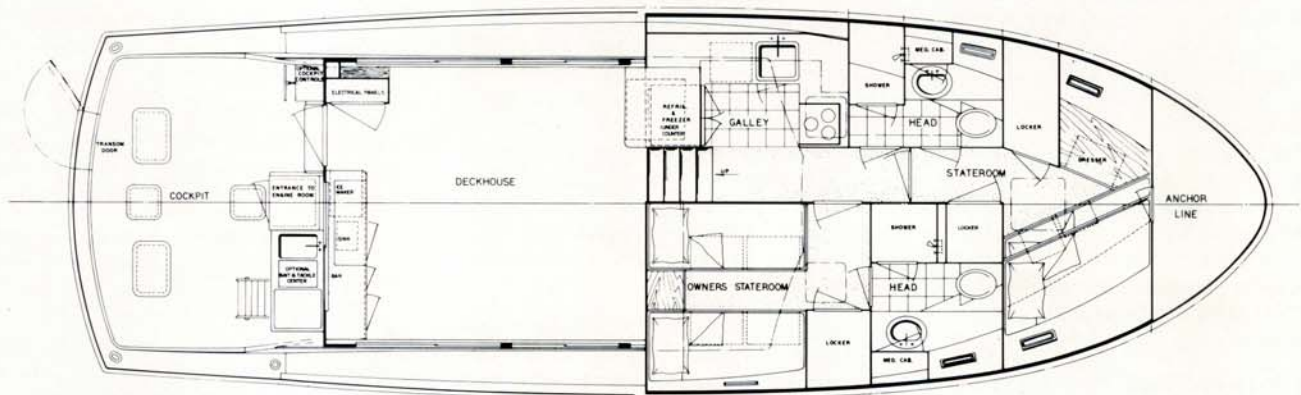
massive 43,000 btus. A rarely seen but much appreciated reed-type frequency meter to let you know the standard 15kw generator is on key.

What we have here is a big, lush sportfishing machine that looks like a heavyweight but moves like a welterweight. To get the speed you have to lay out a few extra bucks and buy a few extra gallons. And virtually every Hatteras convertible buyer is going to do just that. ⚓

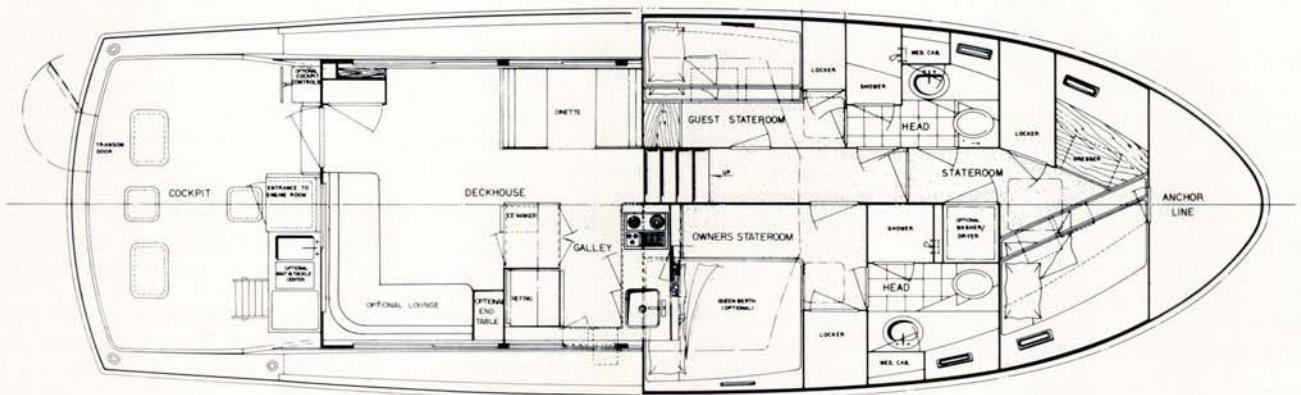
DEX HART

For more information, write AMF Hatteras Yachts, Dept. B, Box 2690, High Point, N.C. 27261.

HATTERAS FIFTY CONVERTIBLE



STANDARD GALLEY DOWN ARRANGEMENT



OPTIONAL GALLEY UP ARRANGEMENT

