



Engineered for long-legged cruising, designed for safety and comfort offshore, the 48 is one of three new Hatteras LR's.

MOTOR BOATING & SAILING

Performance Test: Hatteras 48

BY DEX HART

Workboat brawn and luxury-yacht finish
blend in this new distance-cruising boat

The word "displacement" is once again fashionable. Aided by the memory of the not-so-long-ago fuel crisis, displacement hulls have made a distinct comeback. You see displacement cruisers everywhere. Or "trawlers" or "trawler-types." Unfortunately, the term "trawler" has been badly abused, being applied to boats that are similar to a true trawler in appearance only. Maybe that's why Hatteras uses the term "long-range cruiser." And it certainly is.

Hatteras builds boats of from 31 to 70 feet. The 48LR is the mid-size boat of the trio of recently introduced displacement hulls—42, 48 and 58. As you

add length to such boats, you can carry more "double-decking"—more living space. The 42 uses the tri-cabin layout (no double-decking) from bow to stern: guest cabin, saloon/galley (engines under sole) and owner's stateroom. The 48 tested here carries partial double-decking: guest cabin, pilothouse over owner's stateroom (and flying bridge above) and large saloon/galley aft (engines under sole). The 58 is essentially double-decked for its full length (and has a full-headroom engine space).

This type of variation with length involves logical and well-done com-

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STANDARD EQUIPMENT (partial list)

- 15-kw generator w/sound enclosure, remote start
- auto/manual CO₂ system, engine room
- stereo AM/FM radio & cassette deck (speakers throughout)
- visual/audible 8-function alarm system
- 3 electric 2-speed windshield wipers & washers
- dual station hydraulic steering (Hynautic)
- transom gate, swim platform, ladder
- 16.5 cu. ft. refrigerator/freezer w/ice maker
- garbage disposal
- automatic lights in all hanging lockers
- remote-controlled searchlight
- reverse cycle air conditioning (Cruisaire), throughout
- 2 hand bilge pumps (in addition to automatic pumps)
- fore and aft shore power connections (2-120 and 1-240, 50-amp circuits)
- SSB radio ground screen laminated in cabin top
- fog bell
- boat hook with clips
- hour meters, frequency meter, battery-condition meter
- holding tank (hook-up plumbing optional)
- cushions for forward "sun seat"
- flying bridge cushions & helmsman seat
- damp chaser on galley locker
- retractable clothesline in each head
- bottom antifouling paint

promise between maximum enclosed living space and low windage/low center-of-gravity objectives. I believe the Hatteras boats (lines and accommodation plans by Jack Hargrave) are well-targeted. The hard-nosed ocean-cropper might want some changes, but for cruising the Caribbean, Central America and both coasts of North America (including Alaska), this boat will do just fine. And it will give you luxurious accommodations in the bargain. The beam is 8 inches wider than the 53 or 58 Yacht hulls.

We had our first look at the new 48LR at the Hatteras docks in New Bern, N.C., where she was berthed in company with her 58-foot sister. The family resemblance was striking in both boats—deep, wide hulls with a workboat's heft and businesslike lines to their houses and superstructures. It was a fine, sunny 65° day to be putting the boat through her paces and measuring the results, exactly the kind of picture-postcard day you might conjure up if you were daydreaming a cruise down the Florida ICW on your way to the nearest inlet for a passage to the islands. The wind and water were dead flat until late in the afternoon, but we made up for the lack of lumpy sea with roll tests during hard-over turns in this relatively stiff hull.

Testing was done on the Neuse River near the Hatteras facility where the 48LR is built. I plot data on graph paper *during* testing. Engineers like smooth curves (no smirking, please). The test data plotted with a little undulation so I rechecked but got the same numbers. Similar deviations showed up in three different measurements (fuel flow, speed and running angle), suggesting these are *valid* wiggles. I left them in (don't knock a valid wiggle). The only deviation of real interest is the final one, between 2,400 and 2,530 rpm (wide open). The boat is just over theoretical hull speed at this point and you expect the speed to fall off, the mpg to decrease. They don't. Also the running angle levels off instead of continuing to climb. I was tempted to just saw the curve off at 2,400, but decided to give armchair naval architects something to chew on.

The main point is that the boat runs easily to its hull speed of 8.8 knots at about 2,200 rpm and gets about 0.9 nautical mpg at that speed. The "no-reserve" range at hull speed with 1,300 gallons of fuel aboard would be 1,230 nautical miles (running for about 140 hours). Hatteras talks about an estimated range of 1,500 miles, which is certainly available, but at slightly less than hull speed.

I am using hull speed as the arbitrary definition of a 1.34 S/L ratio. Speed/length ratio is knots over the square root of the waterline length.

Most displacement-boat owners will run at hull speed if range is not a factor, and below hull speed (S/Ls of 1.0-1.2) for long passages. I have marked these S/L numbers on the speed/rpm graph, and will do so for all future displacement-hull tests.

You will note that in dropping from 2,200 rpm to 1,600 rpm you lose less than two knots (while lengthening your running time by about 25 percent—from 11.5 hours to 14.5 over 100 nautical miles, for example). But you use just *half* the fuel. Taking it easy pays.

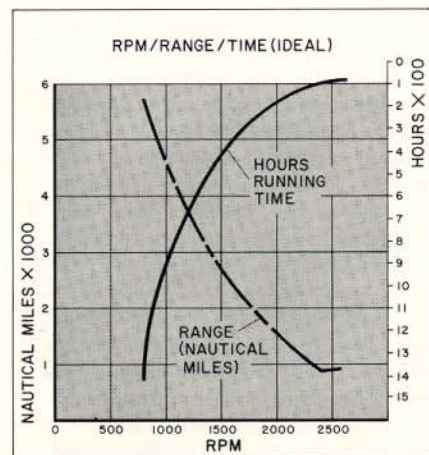
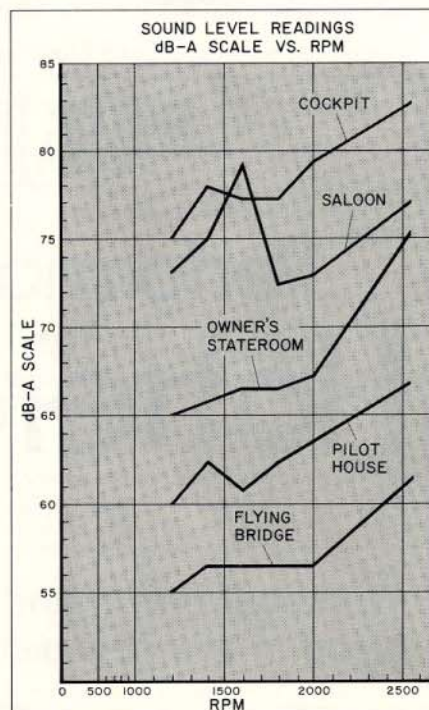
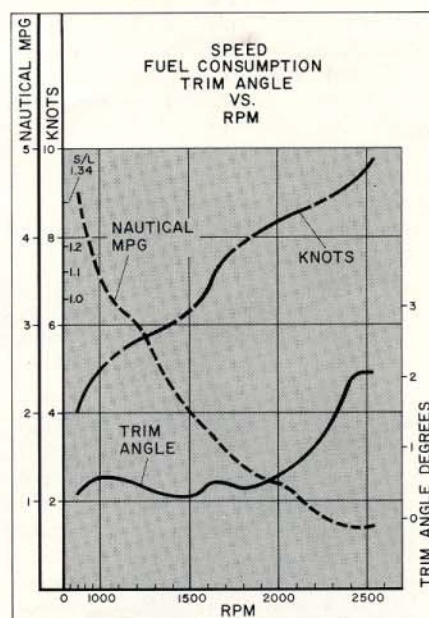
By removing a prop and running a single engine you can do even better. One engine at 1,800 gives the same speed as two at 1,600 (6.9 knots). Range, two engines, 6.9 knots: 2,430 nautical miles. One engine, 6.9 knots: 3,510 nautical miles—44 percent better. I tested with one engine idling in neutral. The inactive prop was freewheeling, thereby reducing drag in the way that a propless shaft would. Caution: Most, if not all, marine transmissions require locking the prop shaft on a shut-down engine to prevent damage. A locked prop *will not* yield the same results I measured.

A locked-prop shaft will allow extended running on a single engine, necessary if you have a failure on a long passage. You should either install shaft-locking devices or be prepared to pull a prop. Running a locked prop will *probably* save some fuel over two-engine operation despite the prop drag, but some hulls actually are less efficient in that mode. Props on the 48LR are well protected, by the way—not as well as a single buried in the keel, but the keel on this boat will touch first, and two engines are handy around the dock.

Note that range figures do not include generator operation. The 15-kw generator, developing 8 kw continuously (for example), will burn about 1.2 gph. At 1,800 engine rpm this means your range is reduced by about 350 nautical miles—a significant 18 percent reduction.

Note also that figures include no safety reserve (which should be *at least* 10 percent). Any individual owner should test his own refill capacity: run it dry. Fill it up. Then you know. (The Hatteras 48LR has four fuel tanks, by the way, making possible accurate monitoring of consumption. The selection valves switch both engine supply and return flow—the *quality* way to handle return flow.)

Running angle changes on a displacement hull are slight. The Hatteras was virtually flat to 2,000 rpm, then increased to one degree at 2,200, two degrees at 2,400. This is not visually perceptible unless you're looking for it.



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On the range and running-time chart, low rpm data is shown for interest but is not really practical. In any kind of sea you need more power than is available at low engine speeds, so don't plan to idle along for 5,000 miles. You will observe that range in excess of 2,000 nautical miles is genuinely available—with a safety margin by slowing further, if necessary. This is a long-range cruiser.

I measured sound levels at five locations. Because each of the locations was clearly a different level from the others, all five are plotted. Data were taken every 200 rpm between 1,200 and 2,000 rpm, with a wide-open throttle point included as reference. Basically, the boat is quiet. The saloon is the only interior point where the sound level is quite noticeable, but it's still lower than many other boats. The engines are directly beneath your feet, but they are relatively small, another benefit of the displacement-hull type. In the pilothouse, the sound level is low. Full throttle sounds like a distant sewing machine. On the flying bridge the water "rush" sound is louder than the engines. A typical sailboat cockpit—closer to the water and with sail

and rigging noises—would be noisier. Sorry, sail fans, but it's true.

The 15-kw Onan generator with Sound Shield was extremely quiet: generator alone, 54 dB (A scale) in the saloon, 46 dB in the owner's stateroom (barely audible). You should sleep well. Note that a 7½-kw generator may be ordered as an option (\$4,875). Not a bad idea as a standby (or when no air conditioning is needed). This boat, with refrigerator and stove, among other items, is heavily dependent on 120v. a.c. for cruising comfort.

Other test measurements: single-engine control, excellent. Emergency stopping distance, 23 yards, less than 1½ boat lengths, excellent. Turning diameter, constant 1,800 rpm, an excellent 38 yards (measured as the imaginary track made by the keel). Engine space full-throttle manometer reading was negligible—less than 0.05 inches of water. There is certainly no power loss from air-flow restriction.

A boat like this is hardly cheap. But lots of people apparently have no trouble popping for the tab, though, as boats are moving down a line devoted exclusively to the 48LR. I've appended a table of the boat as tested, starting

with the base price of \$178,500 and moving easily past the quarter-million mark. Electronics on the test boat cost \$30,140.

What does your money buy, in addition to the listed options? As a starter, 48 feet 10 inches of heavy fiberglass. (Keep that 10 inches in mind. Dockmaster: "How long is your boat?" You: "It's a Hatteras 48." See? Two more inches and you would have had to pay for a 49. Every little bit helps.)

While you can put a bundle into options, the 48 has the most extensive standard-equipment list I've come across. I've selected a partial list for your review; the full list fills a page with fine print. Everywhere you look you'll find little well-thought-out amenities, like a light coming on when you open a hanging locker.

Stowage is extensive and convenient. Cabinet door latches are the positive type (a finger through a hole actuates). Note on the "interior stowage" table the huge space available in the owner's stateroom. Two large hanging lockers contribute heavily. Plus 2 cabinets and 12 drawers! There are almost 200 cu. ft. of easy-access interior stowage.

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SPECIFICATIONS	
Length overall (w/o pulpit)	48.8 ft.
Beam	16.5
Draft	4.2
LWL	43.3
BWL	14.2
Freeboard, forward	8.6
Freeboard, aft	5.5
Displacement, as tested	65,500 lb.
Fuel capacity	1,300 gal.
Water capacity	430 gal.
Power:	
Twin Detroit Diesel 4-53,	
"workboat" rated continuous:	
100 shaft hp @ 2,400 rpm	
Bore/stroker:	3.875/4.5
Displacement:	212 cu. in. each
Weight, dry (w/marine gear):	1,350 lb.
Marine gear:	
Warner 71, 2.91:1	
Prop 28x22, 3 blade	

TACHOMETER CALIBRATION		
True RPM	Port Tach Reads	Starboard Tach
800	785	(Synchronized to port tach setting)
1,000	985	
1,200	1,190	
1,400	1,375	
1,600	1,580	
1,800	1,770	
2,000	1,975	
2,200	2,150	
2,400	2,350	
2,530	2,575	

PERFORMANCE TABLE						
TWIN ENGINES:						
TRUE RPM	KNOTS	MPH	GPH*	NAUTICAL MPG	MPG	RUNNING ANGLE
800	4.1	4.7	0.9	4.5	5.1	+ 0.3°
1,000	5.1	5.9	1.5	3.5	4.0	0.6
1,200	5.6	6.5	1.9	3.0	3.5	0.5
1,400	6.2	7.1	2.7	2.3	2.6	0.3
1,600	6.9	8.0	3.7	1.8	2.2	0.5
1,800	7.8	9.0	5.2	1.4	1.6	0.4
2,000	8.4	9.7	6.9	1.2	1.4	0.6
2,200	8.7	10.0	9.2	0.9	1.1	1.1
2,400	9.3	10.7	13.7	0.7	0.8	2.0
2,530	9.7	11.2	14.0	0.7	0.8	2.1
SINGLE ENGINE:						
1,800	6.9	8.0	2.6	2.7	3.1	—
* Gallons per hour is measured to two decimal places; as a final step, all data is rounded to one decimal place.						



Full instruments, generous stowage, on the flying bridge.

Available just forward of the pilothouse helm station is a huge 38-cu.-ft. space accessible only from a small opening in the companionway (not included in the listed total). Steering and electrical panels block the most logical access. It's not obvious how to provide better access to this space, but I know Hatteras is thinking about it.

Exterior stowage: 20 cu. ft. behind and under the foredeck seat; 7 cu. ft. on the flying bridge; over 50 cu. ft. in the lazarette. Perhaps 10 to 12 more cubes are available in the lazarette if you box in the exposed steering linkage. In fact, be careful how you stow unless you do.

The wiring in the boat is extraordinarily extensive and well designed. Almost every vertical surface in the pilothouse is studded with switch panels, electrical-circuit instruments, and 110v. and 12v. circuit-breaker panels. Indicator lights abound and everything is labeled in a manner befitting the boat's price class. An audible/visual safety panel (separate function lights) monitors oil pressure, coolant temperature, exhaust temp, marine-gear oil temp, a.c. power loss, bilge water, engine or living space fire, and auto CO₂ system discharge. Very nice.

Take note in the specifications that the 4-53 engines are now supplied as "workboat" or continuous hp rating. Smaller injectors. What it means is that you can run full-throttle continuously with no harm done. The 430-gallon water supply should be adequate for most cruises, but some more adventuresome yachtsmen may want to consider an optional watermaker. The Maxim HJ-3 is offered at \$5,630.

A quick tour of the boat: In the pilothouse you also have a large U-shaped dinette with a "day" bunk above and aft. (If you're anchored in a fresh breeze, you'll probably want someone sleeping there at night, too.) Engine instruments are complete. The large stainless wheel is "big ship." Electronics and chart lights overhead (and first-class chart drawers under the dinette step). At first I thought the brown of the large port-side chart-table surface was a bit tacky, but the color grew on me. No glare, functional, and fiddles to keep things in place. Aft visibility is obscured to port if you're carrying the 11-foot Whaler (there's room for a 13, if you squeeze). Keep the hatch from the cockpit ladder closed or it'll further reduce aft viewing. No trick to peek out port and starboard sliding doors, however.

A companionway leads down to both staterooms and both heads; spaces are large by marine standards (approx. 5'x5' for owner's head). A tub and fixed shower head in the owner's head (accessible only from owner's stateroom); shower stall with door and hand-held shower head in the other head—access is from the forward stateroom or the passageway (the door arrangement is ingenious and includes a privacy door to close off the forward cabin).

The owner's stateroom is large. One twin and one double. About 10'x13' with some space cut out for wardrobes. Carpeted area about 5'x8'.

All fore-and-aft movement is through the pilothouse. Aft, down three steps, is the saloon/galley—roughly 11'x12' overall. It is especially spacious because it is full width. No exterior passageway aft (there is a toe space and handrail, but they will be little used). The pilothouse is not full width and the transition allows a convenient step-up to the roomy flying bridge.

The shape of the big sliding saloon windows suggests the covered exterior passageway of larger vessels (including the Hatteras 58LR). All glazing is tempered glass (my personal first choice), except for the curved pilothouse corners, which are Abcrite.

The U-shaped galley offers an efficient, tight layout (desirable at sea). An overhead saloon grab rail is a rarely seen but welcome addition; another sign of a boat truly intended for long-range cruising. A sliding door opens on the covered cockpit, roughly 5'x12', with a deep, protected feeling. There is a transom door for easy access from the aft platform.

The engine space is above average for this type of layout—about four feet deep and roomy in the lateral dimensions. Machinery access is generally satisfactory. The only really tough access looks to be the air-conditioning units (there are four compressors and five evaporators on this boat). The compressors are double-decked in the engine room, with a nest of hoses blocking service access. Hatteras is aware of the problem and is working on a solution.

Any other quibbles? A few, but pleasingly minor. Cockpit scuppers look small (two, 1¼"x5"). Close the saloon door and fill the cockpit with two feet of seawater—that's 900 gallons, almost four tons, to drain out two smallish holes. Admittedly, this is not easy to do with a 5-foot-plus freeboard.

A small cabinet hangs from the overhead over the aft part of the galley counter. It is possible (I proved it) to crack your head on the corner. At sea it could be dangerous (for me it was dangerous at dockside).

This is a well-designed, honest, seagoing motor boat. For those of you who've read Robert Beebe's *Voyaging Under Power*, the D/L ratio (displacement/length) is 360 as tested, placing the Hatteras in very good seagoing company. And Beebe is a tough customer. There's a fair amount of boat above water, but no more than some other boats that have made ocean crossings (with due regard for track, season and window shields).

Stabilizers are an option. I recommend them if you really plan to do offshore work. The hull is fairly stiff, with a roll period of about 4.5 seconds. For stabilizer use you might ideally prefer a slower period (the relatively stiff hull

resists stabilization but the machinery is sized and powered to overcome that). If you don't order stabilizers, you'll be glad you have the stiff hull—less roll in small-to-moderate seas.

All boating involves compromise. You give up one thing to get something else. The Hatteras 48LR involves compromise mostly with speed. You gain tremendous range and seagoing ability. It's a big, premium-price, comfortable, high-quality, long-range cruiser. If you can handle the funding, you'll love it. And you'll be envied by most of the rest of the boating world. Including me. ‡

INTERIOR STOWAGE	
Saloon	15.7 cu. ft.
Galley	37.1
Owner's stateroom	88.1
Owner's head	5.7
Forward stateroom	32.0
Forward head	2.6
Companionway	6.0
	(plus awkward 38; see text)
Pilothouse	7.4
	194.6 cu. ft.

PRICE LIST (AS TESTED) HATTERAS 48 LONG RANGE CRUISER	
Base price	\$178,500
Test boat options (partial list)	
Pulpit	\$2,550
Windlass, Simpson-Lawrence	
(includes 300' ¼" chain)	3,550
Davit w/120 v. hoist	3,120
Cradle for 11' Whaler	645
Dunnage boxes (2)	1,010
Bimini top	1,130
Depth finders, 2 Raytheon digital	2,200
Decca radar, Super 101	7,925
SSB radio, SGC model 711	3,860
Decca VHF-STR-24	2,675
VHF, Raytheon Ray 50 (on flying bridge)	1,685
Autopilot, Wood-Freeman model 423, with remote	4,770
Raytheon loud hailer	730
Loran-C, Decca	6,295
Saltwater washdown forward	605
Microwave oven	655
Washer/dryer	1,000
Stabilizers, Matlack "Air-Stab"	13,000
Spare props, pair (with storage)	890
Spare shaft (with storage)	535
Bimini top enclosure (four sides)	995
Morse docking lights (forward)	730
Telephone wiring	815
TV antenna system	595
Options listed above	\$61,965
Electronics only	\$30,140
Other options—including 11' Boston Whaler, outboard motor and furnishings	\$20,788
Total option cost	\$82,753
Total cost of boat as tested	\$261,253