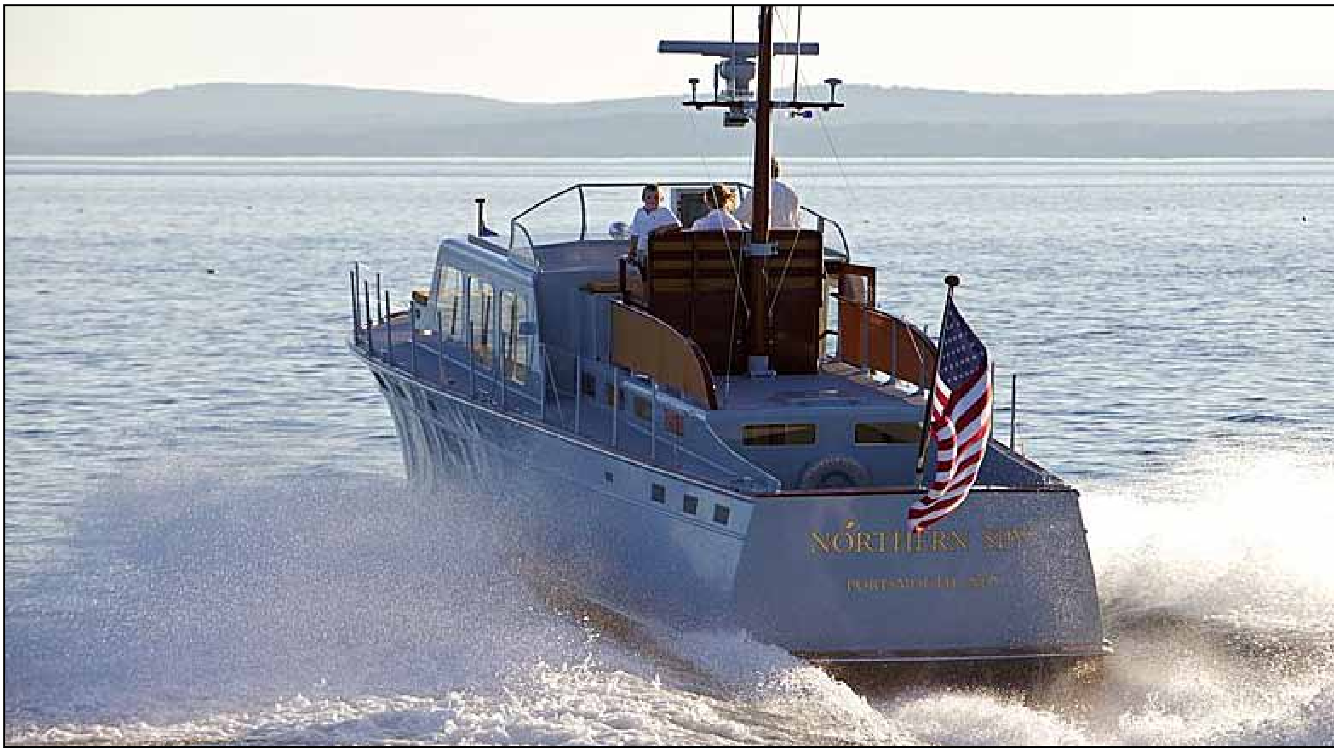


ALISON LANGLEY

Pod-Driven Classic

The repower of a wood motoryacht with pod-drive propulsion required rebuilding the entire bottom, but the resulting appearance and performance are exquisite.

by Eric Sorensen

Above—*When* Northern Spy, *a 45′ (13.7m) 1954-vintage Huckins motoryacht was rebuilt at Yachting Solutions in Rockport, Maine, last year, she was repowered with Volvo Penta's Inboard Propulsion System (IPS) pod drives. The result is a nimble classic with improved handling and fuel economy.*

It's no mystery why the owner would want it.

A 1954-vintage 45′ (13.7m) mahogany-planked Huckins Corinthian is a classic American yacht that gets attention in any harbor. But 56 years isn't young for a wooden boat, especially one with a hard-driving planing hull. And rebuilding the Huckins's resorcinol-glued double-diagonal planking and full-length laminated stem and keel structures would be a challenge for the best repair yards. Now add the complexity of repowering that World War II–era hullform with a pod-drive propulsion system that's been on the recreational market for just five years, and you've got some idea of the daunting task that Yachting Solutions of Rockport, Maine, completed last year.

The project initially called for turning a lightly built 18-knot boat with twin diesel V-drives into a stronger, but not much heavier, 28-knot boat.

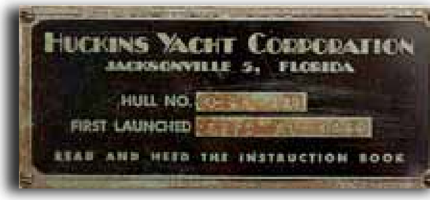
The higher cruise speed required the hull to accommodate increased wave-impact and bottom-loading stresses. And more specific structural redesign was essential to support the twin Volvo Inboard Propulsion System (IPS) drives, which do away with conventional shafts, struts and rudders, but create the possibility of high point loading in the event of grounding. The hull structure must adequately support the new propulsion forces; and the IPS pods' seals, rather than the hull itself, must be the weakest link if there's a high-speed impact. (For more on pod drives, see *Professional BoatBuilder* Nos. 106 and 115.)

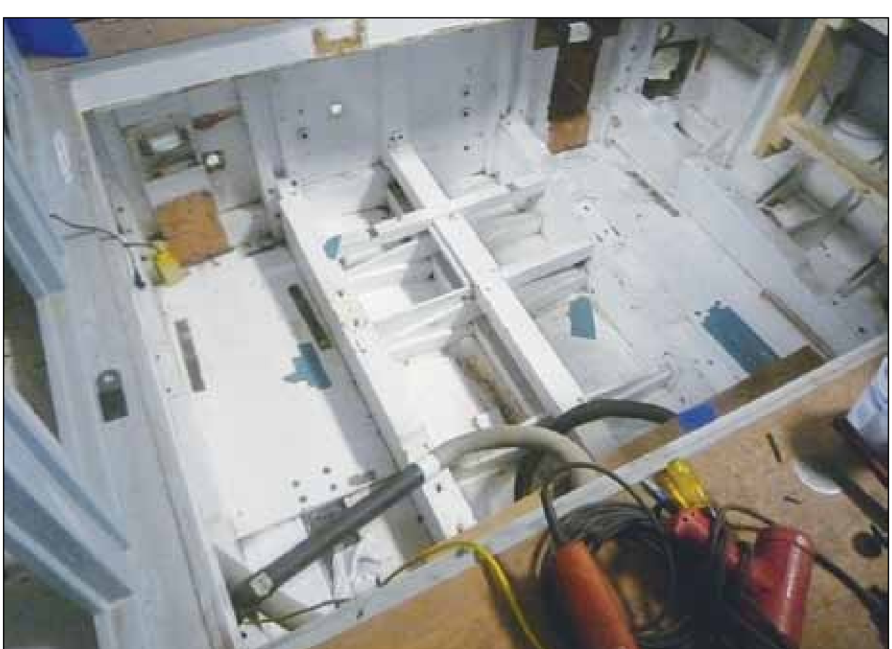
Just as important as the engineering, owner Sam Rowse, an experienced yacht owner and accomplished sailor, insisted that the classic Huckins remain true to its aesthetic tradition. Rowse first saw the boat, which he renamed *Northern Spy* (after the apple variety), in Yachting Solutions' backyard in 2009, and immediately sknew the boat had potential as a practical modern cruiser. "The whole premise was to create a smooth-running, quiet boat that's different from most of what you see out on the water," he said. Most newer boats don't have the Huckins's relatively simple accommodations, classic lines, and temperate proportions. There was also the pragmatic aspect of having an essentially new IPS-powered 45-footer, with the layout and look Rowse wanted, for far less money than a new boat of the same quality would have cost.

And there was the thrill of the unknown. "Part of the appeal was that this had never been done before, and we were pretty confident we could get it right," said Bill Morong, owner of Yachting Solutions. "Another draw was the belief that though the Huckins was over 50 years old, with adequate restoration and proper care it could go another 50 years."

A few years earlier the Huckins yard in Jacksonville, Florida, had worked on the boat for a previous owner, repairing some hull structure and restoring the topsides. Then the boat had been brought to Morong's yard, where crews gutted and replaced the interior: new overheads, heads, soles, paint, varnish, and upholstery, as well as new electrical and plumbing systems. Three years later, the boat was put on the market, where Rowse found it in what seemed to be good structural condition. The interior was fresh, but the old Cummins V-drive diesels, set at a steep 16°, vibrated excessively, so a repower was in order. Rowse said he had Volvo IPS in mind when he bought the boat. He liked the greater efficiency and range, the maneuverability with joystick control, and the relatively compact installation.

Rowse commissioned Paul Waring of Stephens, Waring and White Yacht Design (Brooklin, Maine) to determine the boat's suitability for pod





ERIC SORENSEN

The engineroom early in the rebuild, just after the conventional V-drive Cummins diesels and running gear were removed. Engine beds, hull bottom, and most of the structural members pictured here were replaced in order to accommodate the new engines.

drives. They also looked at the newer Cummins MerCruiser Zeus drive and ZF pods with other diesel options, but the team chose the Volvo IPS package for its more compact and lighter-weight system, and because it didn't require a bottom redesign to include prop tunnels. Another factor was the support Volvo offered in working through the project.

"Volvo has an impressive engineering support team," said Morong. "They gave us engineering data, speed, and trim projections. They're well organized and we felt confident teaming up with them." Yachting Solutions was already a Volvo Dealer repair facility, and a service provider for Lazzara Yachts, an early adopter of IPS systems.

Next, Volvo's IPS Boat Engine Integration Center manager, Ed Szilagyi, came to Maine to ensure that the project was feasible and that the Yachting Solutions team had the expertise to integrate IPS into a wooden hull. (Builders must accept Volvo-specified hull reinforcements around the engines and pods in any IPS installation, original or retrofit.)

Preparation

On my first visit to Yachting Solutions, I sat in on a planning session with Rowse, Morong, Waring, and Brad Ellsworth, the shipwright responsible for rebuilding the hull. They balanced the aesthetics and heritage of the wooden Huckins with the need to make sure it would hold together under stresses for which it was not originally designed. At issue was the extent to which the boat was to be reinforced with fiberglass laminates to support the stresses of higher speeds, and the worst-case possibility of the pod drives shearing off upon high-speed impact. The owner and builder wanted to keep the Huckins a wooden boat, but they had to consider that wood completely encapsulated in fiberglass can rot quickly if water finds its way in.

It was a given that the bottom of the boat in the engineroom was to be heavily laid up with fiberglass to meet Volvo's specifications. So, based on what could be seen of the hull's wooden structure at that point, the plan was to replace the hull bottom, including frames and planking, from the transom forward about 9′ (2.7m) to a point just forward of the engineroom bulkhead.

Ellsworth: "The problem with the engineroom area was that with the diesels, it had had numerous repairs over the years—a lot of patchwork, a couple of planks replaced here and there. There had also been different repowers so they'd had to accommodate new engine footprints. We found the bilge was completely oil soaked, so we knew we had to redo the bottom just to get the fiberglass to stick."

Then there was the question of how far up the topsides to extend the fiberglass. The options ranged from just above the chines to all the way to the sheer. They decided to reframe the hull sides with heavier frames, but terminate them at a new structural longitudinal 1′ (30cm) up from the chine. The glass would cover the bottom and continue up as far as that new longitudinal. From there up, the wooden structure of new frames and diagonal

1954 45′/13.7m Huckins Corinthian

Twin Volvo D4 300-hp (224-kW) IPS 400,T4 props

Displ.:	26,050 lbs (11,816 kg) at ½ fuel.
Test conditions:	5 POB, ¾ fuel, light chop
Capacities:	210 gal (795 l) fuel, 100 gal (379 l) water, 15 gal (57 l) holding

rpm	kts	gph (lph)	nmpg (nml)	nm range (90%)
idle	4.2	0.8 (3)	5.25 (1.39)	992
1,000	6	1.6 (6)	3.75 (0.99)	709
1,500	8.5	4.7 (17.8)	1.81 (0.48)	342
2,000	11.3	9.1 (34.4)	1.24 (0.33)	235
2,200	13.3	12.4 (46.9)	1.07 (0.28)	203
2,400	15.6	14.9 (56.4)	1.05 (0.277)	198
2,600	17.5	17 (64.3)	1.03 (0.27)	195
2,800	19.7	19.3 (73)	1.02 (0.269)	193
3,000	21.4	21.7 (82.1)	0.99 (0.261)	186
3,200	23.7	24.2 (91.6)	0.98 (0.258)	185
3,400	26.8	27.5 (104)	0.97 (0.255)	184
3,500	27.5	30 (113.5)	0.92 (0.24)	173

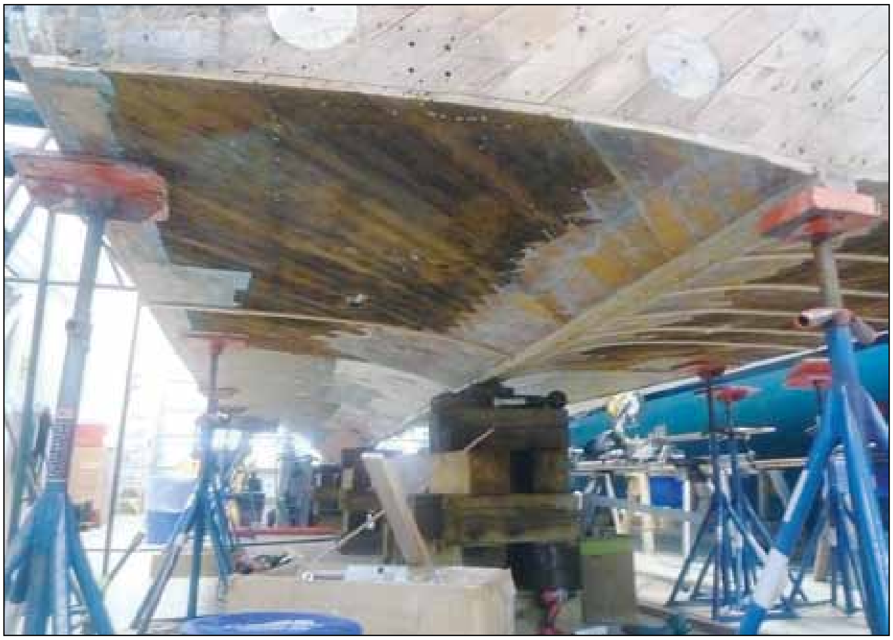
Performance

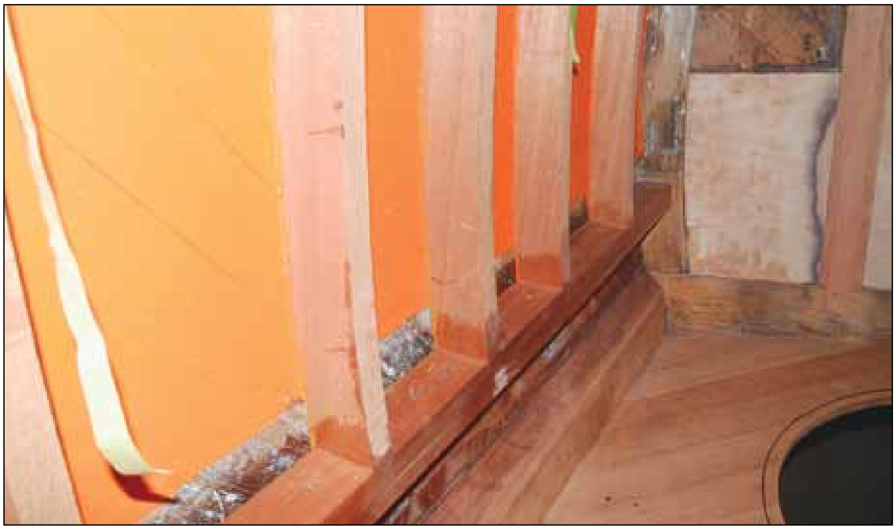
The performance numbers in the table produce the flattest curve I've seen in terms of efficiency dropping off so little from 13 knots to 27 knots (column 2). Resistance increases very little as speed increases, as reflected in the nautical-miles-per-gallon numbers in column 4. (Usually the dropoff is much more pronounced.) That is likely due in part to the boat's flat bottom and hard chines, which combine to reduce hullform drag (note the flat wake, page 63), and frictional resistance through efficient flow separation at the hard chines, and decreased wetted-bottom area as speed increases. The hydrodynamically slippery IPS pods also increase efficiency by reducing appendage form drag. This will probably be the largest factor in the minimal nautical-miles-per-gallon drop, and it's also the reason IPS is particularly well suited for boats that spend a lot of time in the 30-knot range. Thanks to the low deckhouse, the usual wind drag (speed squared) is also minimized.

As a comparison based on length overall, the Huckins gets 30% better mileage per gallon than a popular 34,000-lb (15,422-kg) 32-knot production 45-footer with a 13′11″ beam (13.7m x 4.2m) powered by IPS 600s, and the Huckins is several feet longer at the waterline. These boats are very close to the same size, but the much lighter and lower deadrise Huckins pays dividends at the fuel pump.

—Eric Sorensen

Top—The original mahogany double-diagonal planking had been resorcinol-glued and clench-nailed. When the builders peeled away old fiberglass sheathing, they found detrioration, caused in part by electrolysis. All the planking in the engineroom sections was replaced up to about 1' (305mm) above the waterline.
***Middle**—Although some rot was evident, the initial decision to replace the aft 9' (2.7m) of the bottom was made chiefly because the epoxy fiberglass laminate required by Volvo would not adhere to the oil-soaked planking below the engineroom.*
***Bottom**—To tie the new reinforced bottom into the hull sides, the internal fiberglass laminate—not yet applied here—continued up the hull sides as far as the a new longitudinal stringer. The new ribs were locked into the tops of the stringer, and spanned to the sheer clamp above.*





PHOTOS: TOP AND MIDDLE: ERIC SORENSEN BOTTOM: COURTESY YACHTING SOLUTIONS.

planking was deemed adequate.

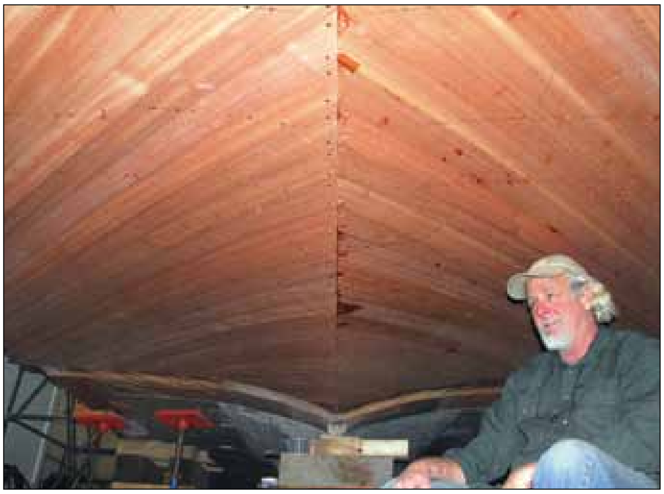
"We needed to have nicely radiused corners to eliminate hard spots," said Ellsworth. "Volvo doesn't fool around with the laminate schedule around the IPS pods and engines. They took the same fiberglass process they had used on other boats and applied it to this boat. There is ¾" to 1" [19mm to 25mm] of glass around the drives, and it's ¾" going up the sides initially, and then tapers off as it comes up the hull sides—once again, to dissipate stress paths."

Early examination of the hull revealed the inner and outer chine logs to starboard, and the outer chine log to port, were in poor shape and would need to be replaced along with the bottom third of the transom.

Working with Volvo, Waring designed the engineroom and the structural part of the engine beds. Because the new 300-hp (224-kW) Volvo D4 diesels were taller than the old Cummins engines, he had to raise the cockpit sole 4" (102mm). The Huckins's high freeboard aft accommodated that change while leaving adequate coaming height inside for passenger safety. To ease engineroom access, Waring redesigned the entire cockpit sole as a watertight hatch, opening on hydraulic lift rams.

Engineroom Rebuild

"To rebuild the aft section of the hull under the engineroom, we put temporary ribbands under the frames



COURTESY OF YACHTING SOLUTIONS

Left—*With the new engineroom planking complete, the transition to original planking is clearly visible just forward. The original plan was to make repairs only as needed to the forward sections, but that changed after crew dug into the structure.*
Right—*The IPS hull rings are shimmed to fit the slightly concave bottom and create a fair surface along the buttocks. Inside, crews applied the thick laminate schedule that Volvo specified.*

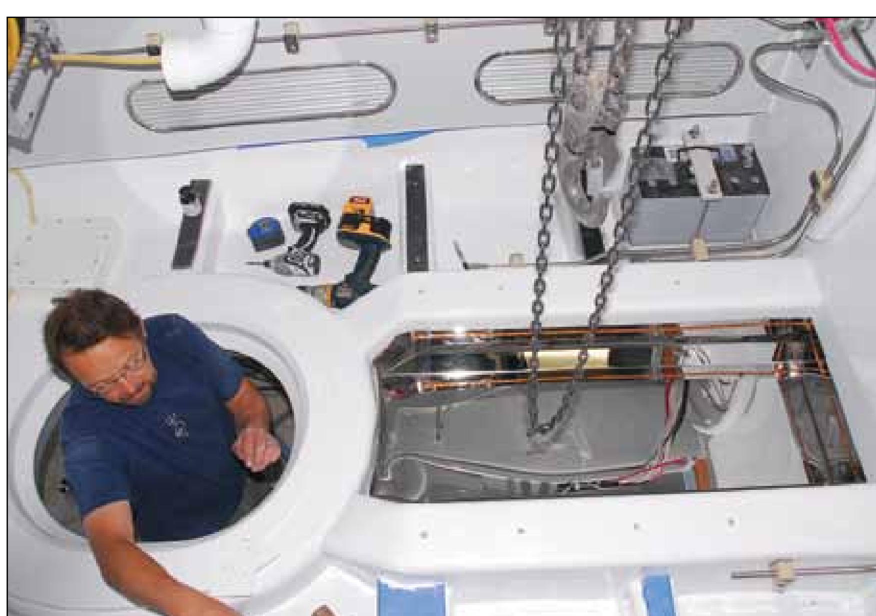
to assess the shape of the hull," recalled Ellsworth. "We saw that the bottom was not in its correct shape. It had a bunch of wavy dips. It had also lost its concavity in section, making it more like a flat, low-deadrise V-bottom boat. We used the temporary transverse intercostals to screw the planking to, applied and epoxied the two layers of planking together so that it would hold its own shape, and then removed the framing. We installed all new ⅜″ [9.5mm] double-diagonal mahogany planking in the bottom from the bulkhead aft to the transom."

They removed screws from the first planking layer as the second was going in. Then, with screws through both layers of planking, and a coat of epoxy bonding them to hold the desired hull shape, crews took out the temporary frames and began applying the Volvo-specified laminate schedule to the planking. The new mahogany bottom received two layers of 1208 fiberglass material on the outside, and the Volvo laminate on the inside. All the fiberglass work was done with epoxy.

"When we sandwiched the wood together back aft—with the Volvo laminate on the inside and the sheathing on the outside—the double-crossed diagonal mahogany bottom planking became a core material, creating a single integral structure," said Morong.

Volvo sent a team from Chesapeake, Virginia, to observe while their specified laminates went in. "We used the same laminate schedule as you'd find in a fiberglass boat. All the intercostals are foam-filled fiberglass just like on a glass boat," said Morong. "We also ended up putting new frames in the hull sides all the way from the sheer clamp to the new chine log. The new hull side framing is thicker and deeper to add strength, and also to have more wood to screw into."

Ellsworth said they finished the forward end of the new engineroom with an additional Soundown acoustic panel. "We wanted the sound deadening and also the extra structure. We had glassed inside the boat heavily, which makes the IPS system all self-contained structurally, but we wanted it all to tie together with the rest of the hull. We added a frame on either side of the original bulkhead, and then set the new bulkhead right on top of the aft-side frame so it was flush, and the glass ran right up it without a bump in it."



COURTESY OF YACHTING SOLUTIONS

In the new engineroom, the IPS pod-drive engine foundation support and pod unit laminates have been installed and finished. For this project, the fiberglass laminate is wet out in epoxy resin; the engine bed and pod ring structures are foam cored.

Beyond the Engineroom

With the new engine and pod-drive installations executed to Volvo's satisfaction, crews turned their attention to the rest of the boat.

"We started working our way forward," Ellsworth said, "scarfing the new engineroom planking into the old planking just forward, and very soon we started finding problems in the keel area. To see what was going on, we had to peel back the two layers of diagonal planking.

"The first clue that we had problems was the bump in the keel right under the fuel tank. During the previous rebuild a few years earlier, they'd used the same tank over again. It was made of Monel and was in excellent shape, so they just put a new sending unit in it. We exposed the keel, cutting the planking back about 2′ [61cm]. By the time we got to the fuel tank, it was obvious that the planking in the garboard area was too far gone to repair, and the keel was not in great shape either. The fuel tanks were glued and screwed in, and once I got them out, there were more problems: the keelbolts were sticking up through, and we could see the hull was sagging in the tank area because there was rot, and the keelbolts were letting go. That's when I got really concerned, and saw how much the keel had deteriorated."

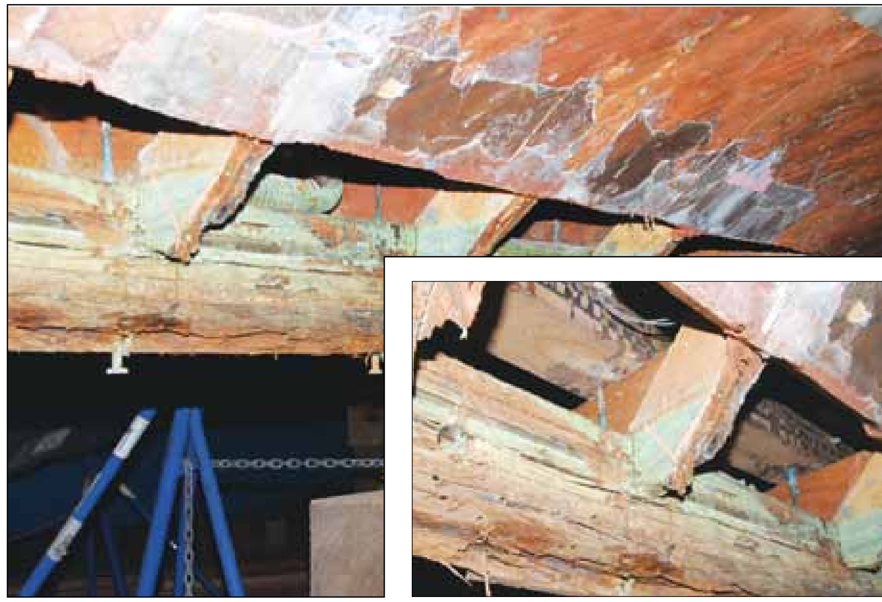
The original plan had been for builders to scarf in new planking along the keel wherever it was needed forward of the engineroom. Now they decided it would be quicker to replace all the bottom planking out to the chines. Working forward, they encountered more rot.

Ellsworth: "Up in the bow area we found that the boat did not have a chain locker; there were just a couple of pieces of plywood set in there to hold the chain. As a result, water was draining down into the bilge, and had rotted the stem out."

That discovery clinched the decision to rebuild the entire bottom and replace the laminated keel and stem. Ellsworth's concern was whether the propulsion loads originating in the stout new engineroom would be successfully distributed to the remaining two-thirds of the boat. He said, "Part of the team felt the existing structure was adequate, but I was a lot more comfortable putting in a whole new structure. Fortunately, Bill and Sam felt the same way."

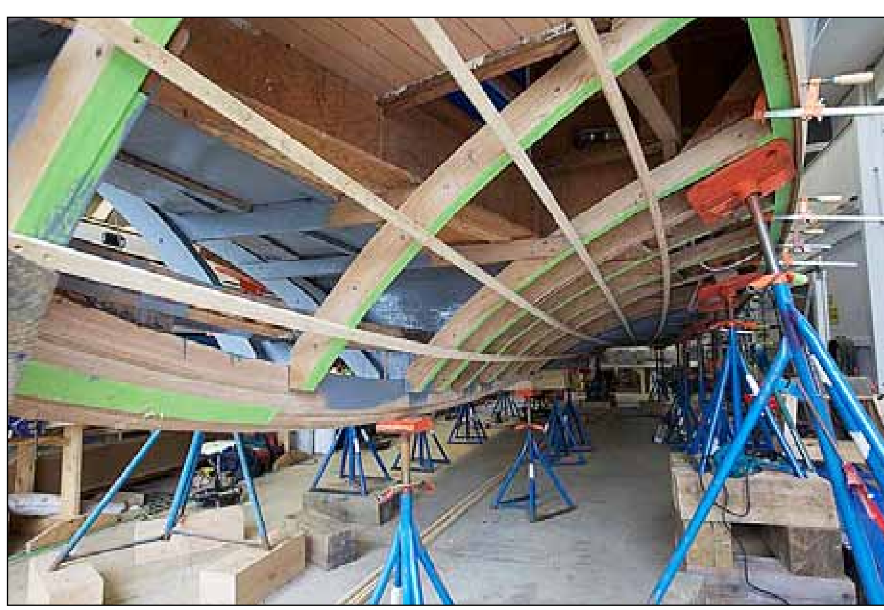
They set in motion the plan to replank the entire bottom. Ellsworth: "We got some of the keel offsets from Huckins, plus I took my own patterns, and we found, not surprisingly, that the boat had lost some of its shape over the years. The point in any restoration is to rebuild to the original shape, but there are limits to what is practical. Once we jacked things around, it ended up being pretty close. From the keel out to the chines, we battened it all off to check fairness. There were some areas, like around the forward bulkhead, where the hull had a protrusion. Fortunately, when we dropped the old keel out, we found that the original floors, plus some that had been replaced over the years, were relatively fair."

"We did the top of the keelson first, then the floors and frames afterwards."



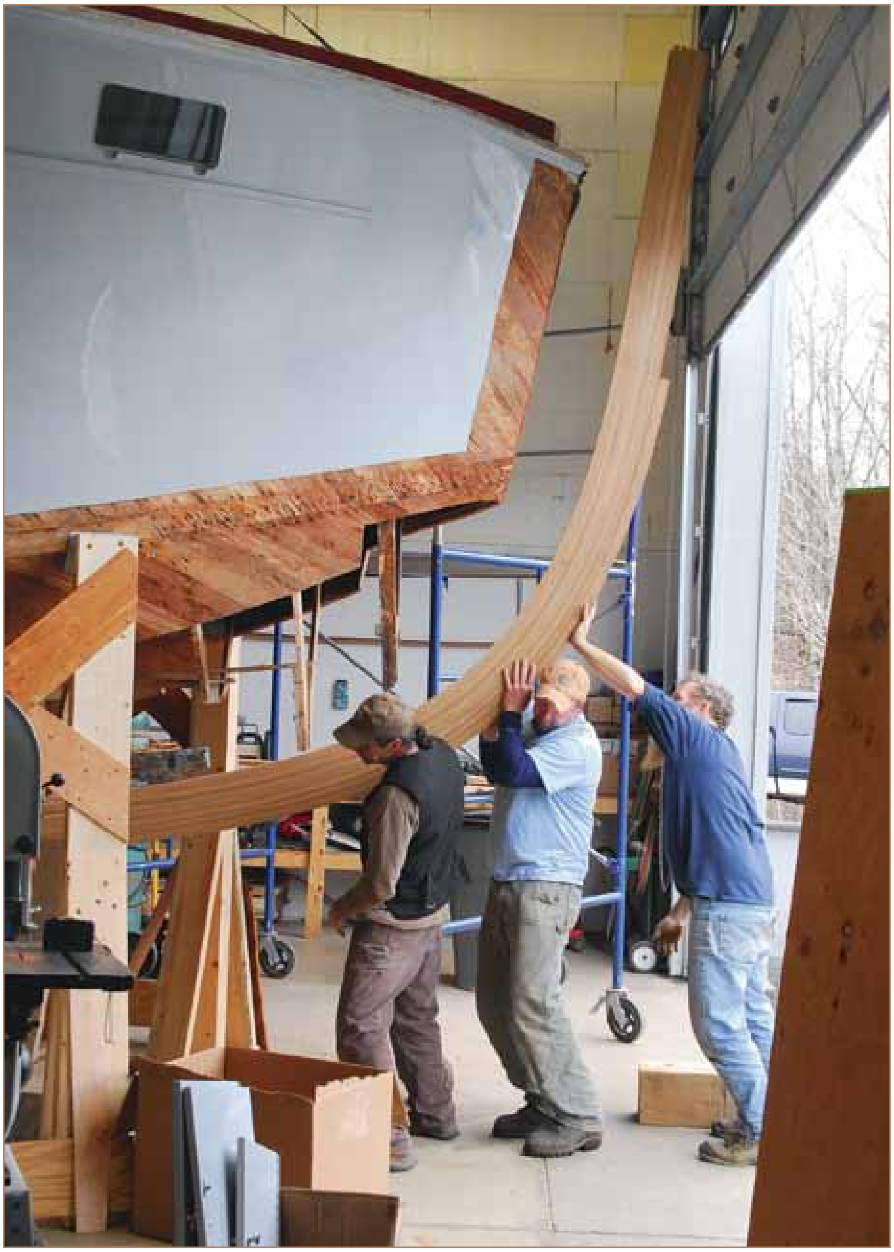
COURTESY YACHTING SOLUTIONS

Cutting back the garboard area forward of the engineroom revealed more deterioration in the frames, floors, and full-length laminated keel and stempiece. That clinched the decision to replace the entire double-diagonal planked bottom forward of the engineroom.



ALISON LANGLEY

With all planking removed from the keel to the chines, crew battened off the bottom to check for fairness; only slight adjustment was needed to restore the original Huckins hull shape.



COURTESY YACHTING SOLUTIONS

Top—*The building crew lift the new one-piece laminated stem and keel into place. It fit perfectly the first try. This piece runs from the stem head to the engineroom, where it is scarfed into the new keel section completed in the first phase of the project.*
Bottom—*To prepare* Northern Spy *for her intended dry-bilge future, crew paint structural members under the cabin soles before replanking. New planking in the forward end of the engineroom can be seen at top left.*

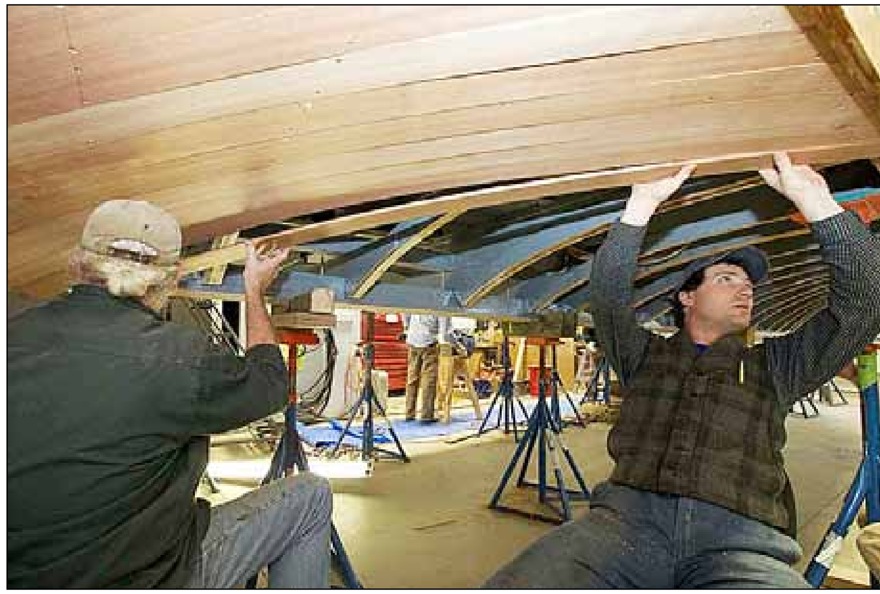
We did every other floor and frame initially, then went back and did the remainder. This helped us keep the shape of the hull."

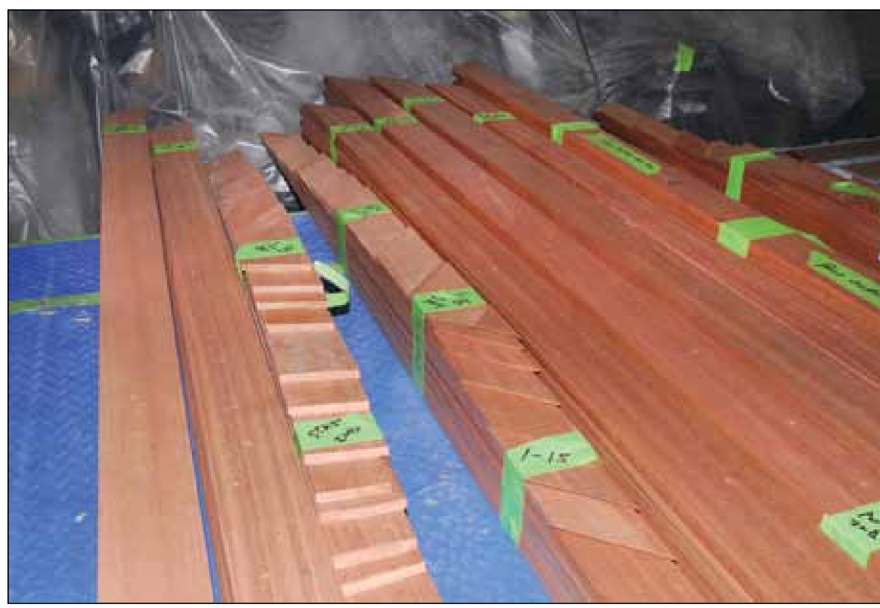
Ellsworth also laminated a new one-piece white-oak stem and keel using WEST SYSTEM G/flex epoxy. Remarkably, the complex piece fit perfectly on the first installation attempt. It was scarfed into the section that had just been installed under the new engineroom. "We replaced the 5⁄16″ [8mm] keelbolts with new 3⁄8″ silicon-bronze bolts with forged heads," said Ellsworth. "I like forged heads because they are strong and have a little web that keeps the bolt from turning once the bolt is driven home. They go in through the keel and up through the keelson, just forward of the floors, which are only 3⁄4″ (19mm) thick. This compresses the hull's backbone together.

"All of the planking was precut, dry fit, and spiled to width and curvature, removed, numbered, and organized by kits for reinstallation, because once the epoxy is on it, it's like butter, and the planking slips and slides around. The planking is coated while still on the table, so it goes on the boat precoated—you see a gray frame and a varnished mahogany bilge. The actual bottom planking took only a day-and-a-half per side. The [original] planking was clench-nailed on using resorcinol. What we did was similar, but we used Kreg [decking] screws, 5⁄8″ [16mm], just enough to clamp the planks while the epoxy set up. We hung the first layer all the way down and then hung the second layer. We waxed them [the screws], and the next day, with the epoxy set, we backed them all out. The only screws that stayed in were the silicon-bronze screws going into the frames."

The building crew also replaced the

Top—*Crew dry-fit the first layer of mahogany planking, spiled and cut to width and curvature.*
Bottom—*The pieces are then bundled in numbered kits, before being coated with epoxy coated and installed. Once they're on the frames, the planks are clamped with temporary screws until the epoxy has cured.*





TOP: ALISON LANGLEY BOTTOM: COURTESY YACHTING SOLUTIONS

full-length chine logs, inside and out, which contribute significantly to the structural integrity of the boat.

Once the planking was fastened, the crew faired with large-diameter pad grinders and long boards, paying particular attention around the IPS rings, which had to be mounted flat on the concave hull bottom.

After the bottom was glassed with two layers of 1208 set in PRO-SET epoxy, it was faired again with an epoxy fairing compound; then a coat of Interlux InterProtect epoxy barrier coat was applied to the hull with an airless sprayer. "The fiberglass really tied everything together," said Morong. "Considering the speeds the boat would be capable of with IPS power, we weren't going to take any chances."

In her new incarnation, *Northern Spy* is intended to be a dry-bilged boat, so crews applied bilge coat on the inside to protect the new frames and floors. In addition, "we installed an Arid Bilge System [Deerfield Beach, Florida]," Ellsworth explained, "so if water does get into the bilge—say someone spills a bucket of water—then this system turns on with a timer and takes a suction in four places along the bilge's lowest area."

Because the rebuild was accomplished without removing the interior, little needed to be done inside above the bilge except a few improvements that Rowse specified.

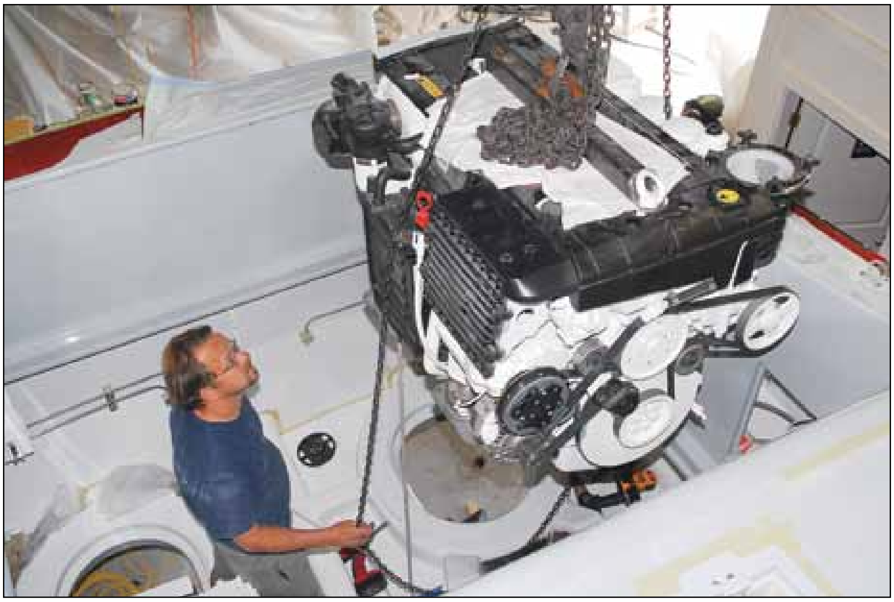
Although the hull exterior had been recently refinished, the extensive rebuild required that it again be faired and sprayed with Awlgrip paint to restore the flawless topside finish in the striking Navy gray. Following those finishing touches, *Northern Spy* was back in the water for the 2010 summer season in Maine.

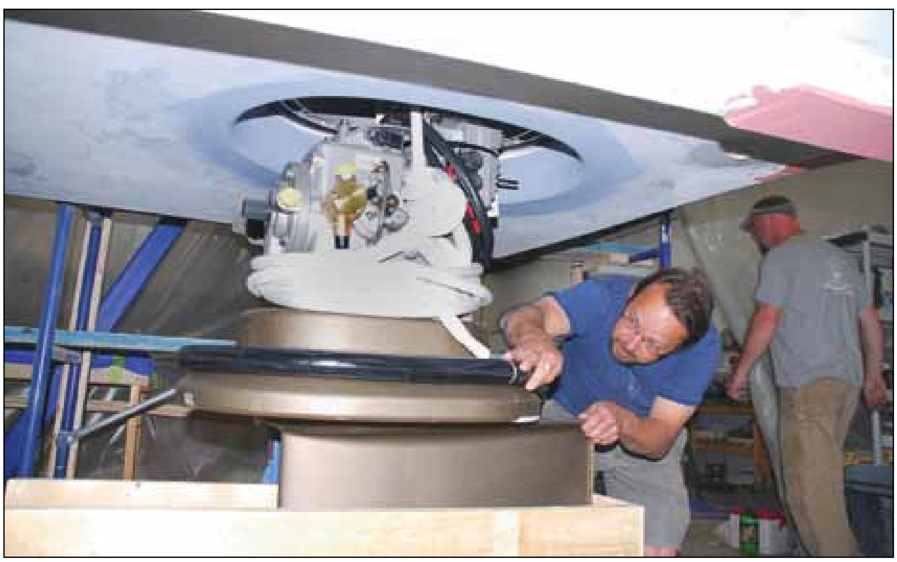
Sea Trial

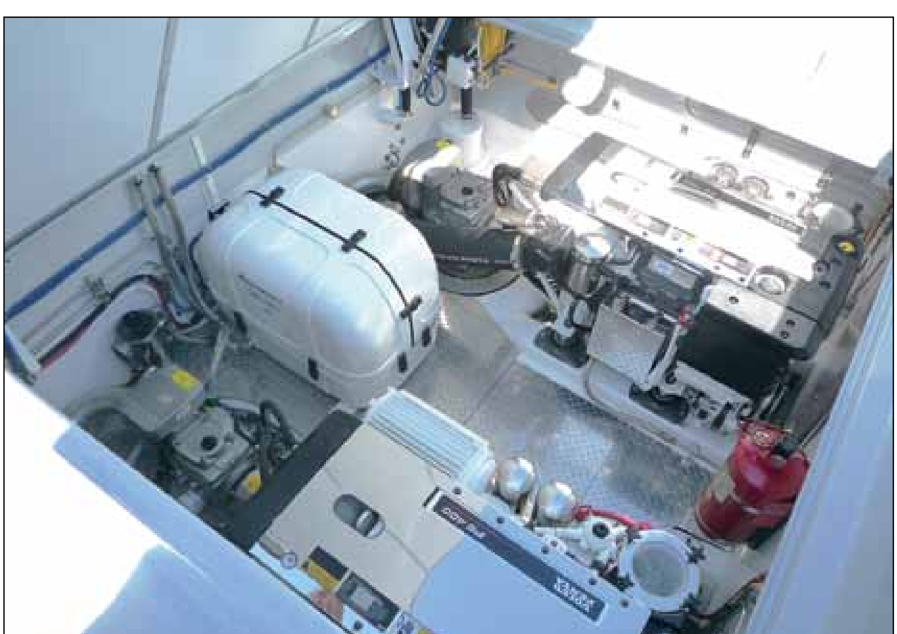
The first time I saw the Huckins it was torn apart in the shed, the bottom chopped out, the engines gone, and the topsides wrapped against further injury. It was a bit of a shock to see her less than a year later, beautifully finished and afloat at the dock awaiting a sea trial. I recalled that this all started as a repowering project, and insisted on seeing the new engineroom before we got under way.

First, the space has a flawless Awlgrip finish and what appeared to be (but of course are not) tooled fiberglass bilges. Next, it is totally accessible, since the whole cockpit deck above rises entirely out of the way at the push of a button, with the sky being no limit to headroom. Third, the component quality and ease of maintenance are as good as anything I've seen: The fuel lines are stainless steel tubing with compression fittings. The Volvo raw-water strainers are clear at the top so you can see when they're getting loaded up; and the wing nut on the top spins off, and the basket pulls right out for quick cleaning. The fuel filters and the oil-changing system are in cockpit cupboards under the gunwales, so you don't even have to raise the hatch to get to them. The generator is readily accessible; and Soundown perforated panels help attenuate machinery noise levels. To that end, locating the engineroom all the way aft also helps isolate noise, as well as placing the variable liquid load of fuel tanks over the boat's center of buoyancy.

A goal of repowering *Northern Spy* with IPS drives was noise reduction, so I measured noise levels in three places onboard: at the open helm, in the lower station in the salon, and in the master stateroom, which shares a







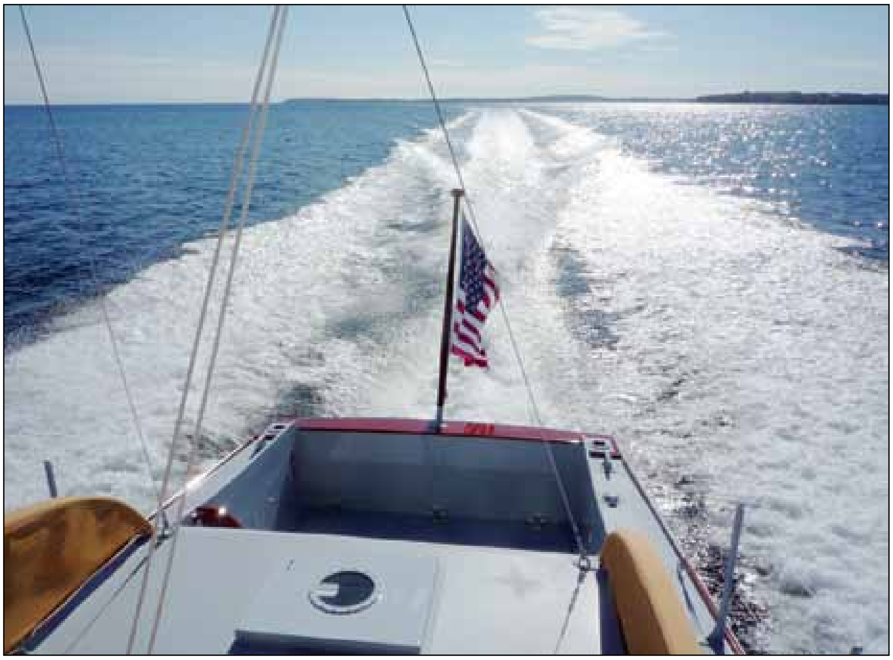
TOP AND MIDDLE: COURTESY YACHTING SOLUTIONS BOTTOM: ERIC SORENSEN

Top—*With the hull ready for the new engines and drive system, which were the impetus for the entire job, the port Volvo D4 diesel is lowered into place.* ***Middle***—*The starboard IPS pod is positioned and ready to be raised into the drive port and attached to the engine above. Note the large black rubber gasket; it's designed to remain in place to keep the hull watertight in the event the lower pod unit shears off in a high-speed grounding.* ***Bottom***—*Besides its impeccable finish and the fit of components, including the generator and sea strainers, the new engineroom is totally accessible—the entire cockpit deck is a hatch opened and closed by hydraulic lift rams.*

bulkhead with the engineroom. At idle, sound levels in all three locations were in the high 60-dBA range, which is very quiet. At 3,000 rpm and a little over 22 knots, the lower helm measured just 74 dBA, the result of a combination of the common-rail diesels that are pretty quiet to start with, and mounting those engines on soft mounts that minimize vibrations. Of course, the lower helm is a stateroom away from the engineroom, though the master suite is still only 79 dBA at 3,000 rpm, which is not bad.

Bigger diesels are invariably louder, so being able to get away with lower horsepower, thanks to the efficiencies of pod drives, contributes to quieter operation. This is also an advantage of a 20-knot-cruise boat, which requires maybe half the power of a 30-knot-cruise boat. It's worth remembering that speed is very expensive—at time of purchase *and* over the life of a boat. Setting your expectations below 30 knots allows for lighter, quieter, cheaper operation with pod drives or a conventional drivetrain and steering. When you get right down to it, in a 20-knot boat, there is very little difference in efficiency between a *properly* geared and propped shaft inboard, and a pod drive. However, in the 9′ aft engineroom of the Huckins it would be impossible to get the 8° or 9° shaft angle and larger prop size for the *proper* conventional installation needed to match the pods' efficiency and low vibrations, even at 20 knots. *Northern Spy* now benefits from the pods' maneuverability, smooth, low-vibe

__Top__—Systems checks don't get any handier than this, with the fuel filters and engine oil changing system right inside the cockpit lockers.
*__Bottom__—*Northern Spy *at full IPS power making 27 knots, nearly 10 knots faster than was attainable with the old Cummins power plants and drive system. The boat is also far more maneuverable, thanks to joystick control in the docking or sportfish mode.*



operation, and compact installation, as well as its efficiency.

The Huckins is a lot faster with 300-hp IPS 400s (the 400 refers roughly to the shaft-drive hp it would take to produce similar speed, only with more frequent fuel stops) than it was with V-drives. With the Cummins V-drives it was a 16-knot-cruise boat; now it cruises at a solid 22 to 24 knots, with a top end of 28 knots.

We hit 28 knots at 3,500 rpm on our test ride, though the boat reportedly managed 30 knots when it was first relaunched. Now, in rough water this boat will not keep up with a deep-V of the same size, simply because deadrise in this PT Boat–type hull flattens markedly between stations 3 and 5, just the area of most wave impact in a monohull running at 26 to 28 knots. But just lope along at, say, 18 to 20 knots, and the boat settles down into the water a bit, allowing the sharp forefoot to cleave the waves for a comfortable ride. With the new IPS installation, Rowse always has the ability to make 25 or 26 knots in a modest chop when he wants to.

One thing the low-deadrise Huckins Quadraconic hull delivers is efficiency on plane. The flat sections aft, and the boat's moderate 26,000-lb/11,793-kg (½ fuel, full water) displacement relative to its bottom area, allows the boat to easily get on plane and at a comparatively low speed. In fact, at just 11 knots, we had a clean, solid wake astern and a rise in center of gravity. This low-speed planing capability is especially impressive considering that the engines and pods sit in the stern of the boat, and it bodes well for the boat's get-home ability in snotty conditions.

In addition to getting on plane at 11 knots, this 45-footer has little bow rise on the way up, in spite of the horizontal thrust angle of the props. The long waterline helps here, with the nearly plumb stem making the boat nearly 45′ on the waterline, and the boat's beam/length is quite moderate by today's standards, which also mitigates bow rise. I've run perhaps a score of IPS-powered boats, and this one turns flatter than the others, likely due to the keel, which restricts lateral movement in a turn. The boat responded well to the helm, with just 3.5 fingertip turns lock-to-lock, making her nimble and a pleasure to drive. This kind of agility isn't just enjoyable, it also makes the boat much safer in terms of collision and object avoidance at speed.

(Note: For video of *Northern Spy* under way with IPS propulsion, go to www.proboat.com.)

As smoothly as *Northern Spy* ran during the trial, Morong said there were some glitches to work out when the repowered boat was first launched. "The original predictions of running angle were off the mark," he said. "We think it's because of the keel, in part. When we first sea-trialed the boat, we were getting 5° to 6° running angles, and Volvo was originally concerned about the opposite—the boat running too flat, and even spinning out with too much resistance

ERIC SORENSEN (BOTH)

Top—*Two trim tabs, visible just under the swim platform, and fairing blocks that can't be seen here, were added to adjust the boat's running trim and to bring the bow down. It was one of a few tweaks required after the repower.* ***Bottom***—Northern Spy's *owner, Sam Rowse, left, and Bill Morong of Yachting Solutions enjoy late-season sea trials. Although the bugs seem to have been worked out of the new propulsion system, Morong constantly amended the to-do list in his notebook.*

forward. So once we found out she ran bow high we added trim tabs faired in with blocks; and these fairing blocks alone, which were proud of the buttocks, were enough to drop the bow 2.5° without even using the tabs. We were also burning up impellers since the exhaust air from the pods was aerating the raw-water intakes, so we had to add snorkels to provide a clean water flow. Volvo provided these as they were already designed for their triple- and quad-engine installations."

Another flaw evident in early operation was that the marine reduction-gear slip calibration needed tweaking, so the dynamic positioning system has not been working to specs. It took a little finessing to get the boat to move laterally, but Volvo has promised the owner a fix.

The boat has Palm Beach controls, with a lever on either side of the wheel, which is not my cup of tea, but which Volvo undoubtedly developed to make IPS more attractive to the tournament-fishing crowd. What really should make IPS attractive for anyone who cares about maneuverability, though, is that an IPS boat in sportfish mode will spin circles around any inboard. Using just the joystick in high-speed maneuvering mode, the engines throttle up to 1,500 rpm, and in low-speed mode up to 1,100 rpm. The fact that this particular application was on a circa-1954 hull didn't make any difference to the intended drive performance.

Returning from our test run, it's difficult to see how this particular retrofitting of a vintage Huckins with a pod drive has any appreciable downsides. That's not to say such applications are easy. (Indeed, Volvo and other pod-drive manufacturers are likely to continue to keep close tabs on all applications of their relatively new technologies). But done right, this kind of project can be pulled off successfully, blending the proportions, utility, and grace of a 56-year-old design with the latest in propulsion engineering.

Why would an owner want that? Rowse would tell you that the intangibles are at least as compelling as the more obvious assets.

"It's a real fun boat to own," he says. "Everywhere we go, people stop and talk to us. Their father or uncle owned a Huckins, or they remember the PT Boats. Probably the ultimate compliment, though, is when a lobsterman turns toward us, stands tall, and salutes, recognizing the Huckins PT Boats in her lines."

About the Author: *Eric Sorensen has been operating commercial, recreational, and military vessels for four decades. He was the first director of the marine division of J.D. Power and Associates (the customer-satisfaction survey organization), and is the author of* Sorensen's Guide to Powerboats, *now in its second edition. He specializes in powerboat design, construction, safety, and performance at his Plattsburgh, New York–based firm, same name as the book.* PBB