



Among the many boatbuilding tool and equipment manufacturers on hand to discuss their latest offerings in the Louisville, Kentucky, exhibit hall at IBEX 2012 was a leading screwdriver manufacturer, Wera of Wuppertal, Germany.

COURTESY IBEX

Show and Tell

Our editors' pick out some favorite tools from the aisles of the 2012 International BoatBuilders' Exhibition and Conference (IBEX) and the Marine Equipment Trade Show (METS).

To judge by the daily volume of inbound marketing messages and the persistent clutter of packages in shipping and receiving, it seems that every possible tool, material, or notion even tangentially relevant to the boatbuilding trade comes across the editorial desk here at Professional BoatBuilder. Yet every

September—or October, depending on the year—the exhibit hall at IBEX (Louisville, Kentucky) offers up a few surprises even to our over-exposed editorial team. Then in November our collective realization that there are indeed a few new things under the sun is always confirmed on the show floor at

METS (Amsterdam, The Netherlands). This past year, the tools that caught our editors' attention ranged from technical manuals—a must in any repair yard, where you don't know what problem will show up at the dock next—to a better wire stripper and a unique coating remover.
—Ed.

A Better Wire Stripper

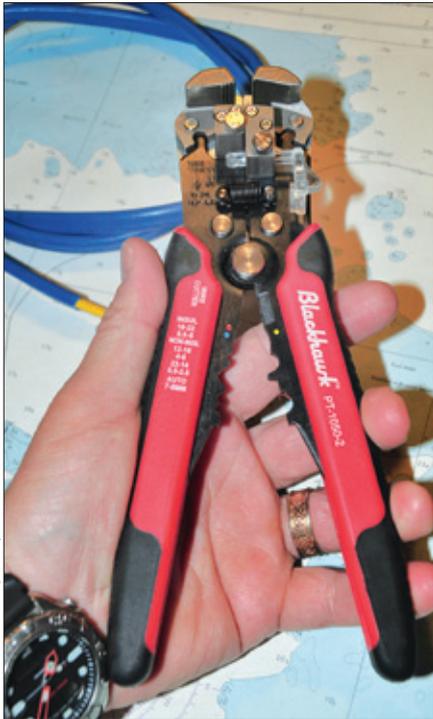
I'm always on the lookout for good-quality tools or tools that improve on existing designs. Years ago, while I was working as a marine electrician, an automatic wire stripper was introduced. The concept was unique: clamp jaws grabbed the insulation and essentially pulled rather than cut it off the conductor. It sounds rough, but it worked and was especially useful for removing the outer jacket from

sheathed duplex cable, a task that is otherwise challenging to execute neatly. Additionally, for all but the most experienced marine electricians, the conventional practice of cutting insulation with a stripping tool with multiple wire stations always holds the risk of inadvertently shaving off a few conductor strands beneath. This clamp-and-strip approach offered a clear advantage.

Unfortunately, the tool had one

fatal flaw: its jaws were delicate and prone to breaking, especially when the cable was cold and stiff. The tool was warranted, and I kept a supply of replacement jaws on hand, which I could swap out in a minute or two.

On the show floor at the 2012 IBEX, I encountered a tool display that included a variety of what appeared to be high-quality hand tools. One in particular caught my attention: a Proto Blackhawk PT-1050-2 automatic wire



Blackhawk's PT-1050-2 automatic wire stripper is a step above the standard tools for this task. Above—The beefy clamping and stripping jaws stand up to heavy use, and while the crimping dies (left) are inconveniently located below the tool's pivot, they are available if a better crimping tool isn't handy.

stripper. I picked it up, handled it, and immediately knew this was different than auto strippers I'd used in the past. It was noticeably heavier, and the jaws were extra thick. The folks at Blackhawk sent me a sample, which I've now tested extensively. I remain impressed. The stripper works well under all temperature conditions (I tested various wire samples I had placed in the refrigerator), and can strip insulation from 8-gauge to 30-gauge wire.

The extremely heavy jaws appear to be immune to failure even when confronted with especially heavy, stiff, or cold insulation. Prerequisites for any good hand tool are balance and grip; this one has both. It simply feels good in my hand.

A swing-into-place plastic choke is applied when stripping especially small wires. This feature appears to be fragile, but thus far it has held up well. Time will tell whether it's as rugged as the rest of the tool.

Like other stripping tools, Blackhawk's model incorporates a wire cutter and a series of crimping dies in the mechanism, none of which are likely to be used by professionals because they are below the tool's pivot point, where inserting crimp connectors is awkward and slow. This is a minor gripe that doesn't detract significantly from the tool's primary

function. As with many tools that include these add-on features, they are a compromise, but in the event a crimping tool isn't handy, the PT-1050-2 can fill the role.

It seems Blackhawk has successfully improved on an already good idea, and I believe it's an advance whose time is long overdue.

For more on the Blackhawk PT-1050-2, visit the website stanleyproto.com.

—Steve D'Antonio, Technical Editor

Coating Remover With Depth Control

It would be interesting to catalog the many tools developed over the last 50 years for removing surface coatings, be they paint, gelcoat, rust, or scum. Their numbers are legion, in part because one can do a lot of damage with just a wire brush in an electric hand drill, and while solutions like baking soda sprayed from a high-pressure gun are reputed not to harm substrate, in truth a careless operator could blast his way right through a hull by mistake. The main problem with

Dutch company Tercoo's unique rubber grinding disks tipped with tungsten carbide studs are capable of removing nearly any coating, and are commonly used to strip gelcoat and clean welds on steel boats.

An adjustable guide allows for depth control and attachment of a dust-extractor housing.

the many types of abrasive devices is controlling depth. Handheld gelcoat peelers such as the British-made GelPlane accomplish this with adjustable shoulder guides that set the distance between the blade and the hull surface.

At last fall's METS, in Amsterdam, the Dutch company Tercoo exhibited yet another handheld tool designed to remove all sorts of surface coatings. Specifically, the company makes the business end: the Tercoo is a rubber disc "blaster" with 12 tungsten carbide pins, or tips, embedded around the circumference. Tercoo's Leo van Dinteren explained to me that there's a "hammer effect" of the tips hitting the coated surface that results in no heat transfer, meaning that bitumen-based products such as adhesives and tar won't smear and resist removal. That hammer effect occurs because of the centrifugal force operating on the rotating disc.

Each disc measures 5" (126mm) in diameter, and ¼" (6.7mm) thick. To work on larger areas, the Tercoo offers double and triple discs; and the Multi has eight discs, in which case the customer-supplied, standard drill-type tool is abandoned for the FEIN WPO 14-25 E, rated at 1,200W and 900–2,500 rpm.

To control depth of the cut, there is an adjustable guide that consists of two parts: an aluminum bar affixed to the tool with rubber feet, and a rubber-tipped thumbscrew threaded through the collar that connects the entire Tercoo assembly—including guide, handle, and dust-extractor housing—to the tool.



Van Dinteren says the tool works well on a variety of coatings and substrates beyond boat hulls and parts: concrete, rubber, cleaning welding seams on steel, and removing rust on automobile parts. Cost is \$43 (€32.25) for a single rotating blaster, and \$163.70 (€125.90) for the complete adjustable guide with dust cover and vacuum connection.

Visit the Tercoo website, tercoo.com. For sales in the U.S., tsitool.com.

—Dan Spurr, *Editor-at-Large*

Reference Works

In 1981, in a previous life in a small boatshop, I had a customer who brought in a 1967 British Seagull motor for his sloop. At the time, Seagulls were plentiful in the States, a popularity that helps explain why Clymer Publications' "handbook" covering "Seagull motors built for the U.S. market" was in its third printing of a second edition when I ordered a copy to guide me through necessary work on that sloop's outboard auxiliary.

Seagull's smoky single-cyl/single-carb two-stroke outboards (with a magneto ignition system) have long since been supplanted by cleaner lightweight four-strokes. But the motor's technology is not the point here; the technical quality of that manual is. Clymer's '81 edition in my

reference library remains the gold standard, for me, of service-and-repair manuals aimed at marine professionals and boat owners alike. (Note that Clymer's manuals—there are some 400 titles today covering thousands of machines, ranging from vintage and modern motorcycles to small engines and farm tractors—are alternatives to, but not substitutes for, manufacturers' shop manuals, which are proprietary.)

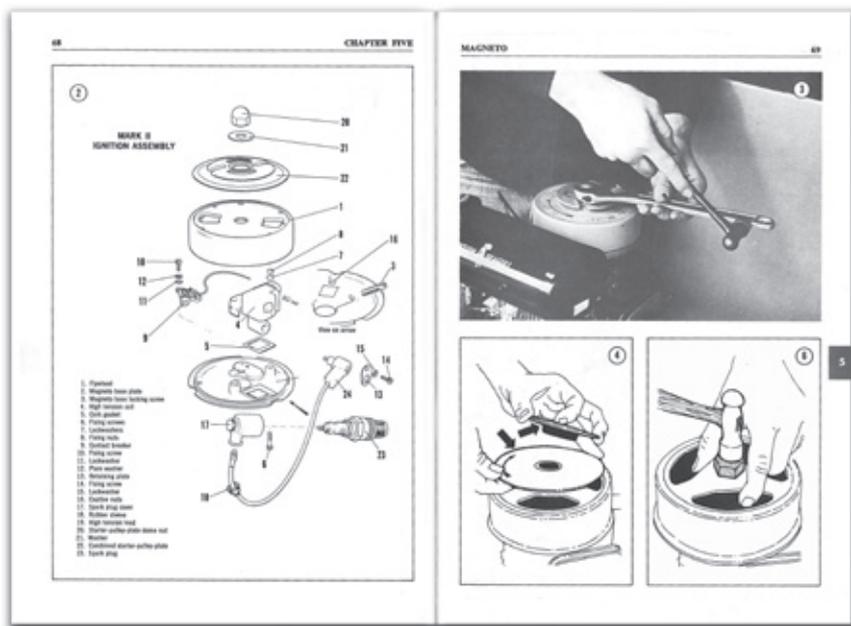
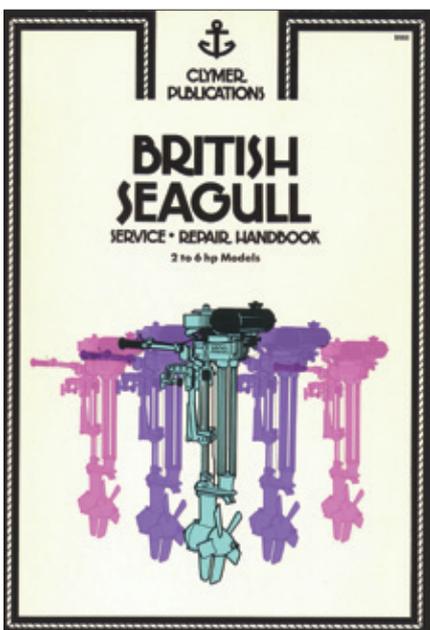
Clymer divided its Seagull manual into seven chapters: general information; tune-up, lubrication, and maintenance; troubleshooting; fuel system; magneto; power unit; lower unit; and then closed with a comprehensive index. Besides the clarity of the text—unembellished prose, presented in short sentences—the beauty of this little book (146 pages, including index) lies primarily in its photography. There are hundreds of black-and-white photos closely focused on the part being discussed or the procedure demonstrated. Depending on the detail at hand, Clymer augmented photos with line drawings to further illuminate the text. "At hand" is meant literally: most of the photos feature the technician's fingers actually executing the described maneuver—handling a given part or tool, disassembling, reassembling, gauging, etc.—which provides human scale while showing

how to do things properly. Finally, in addition to photos and line art, Clymer distributed easy-to-read exploded drawings throughout the text, along with information and pictures regarding essential tools, among them the minimum complement of Whitworth wrenches.

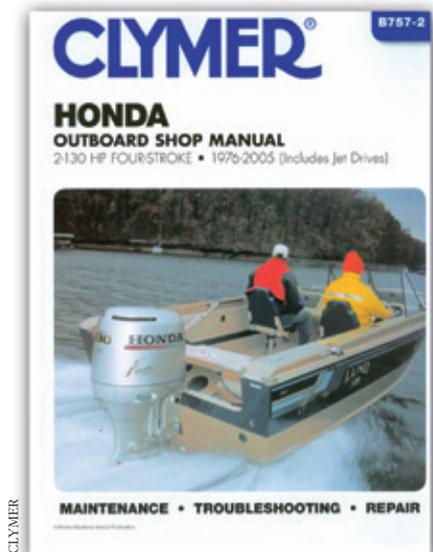
The same overall organization and approach cited above, for the Seagull, has been carried into contemporary Clymer manuals such as the *Honda Outboard Shop Manual*, which covers 2-hp to 130-hp units (1.5-kW to 97-kW) made from 1976 to 2005, including jet-drive models. Reflecting the rising popularity of four-strokes in general and Hondas in particular, my own Clymer Honda manual is a third printing (2011) of a second edition (2005); first printing of the first edition was 1999.

This newer, heftier manual reflects more than just a different make and kind of outboard. Clymer's Seagull handbook covered seven separate models from 2 hp to 6 hp (1.5 kW to 4.5 kW) that were basically similar except for their carburetors. By contrast, the Honda volume covers 20 models encompassing a huge range of horsepower and significant complexity, even at the lower end of the product line.

To cover that amount of technical



Although British Seagulls have virtually disappeared from today's waterfront, Clymer Publications' successively updated "handbook" for these motors—the one shown here was issued in 1981—remains arguably the best example of a technical shop manual available to professionals and boat owners alike. (Manufacturers' manuals are typically made available only to their dealers.) Note the helpful combination of graphic elements in this open-page sample: close-up photos augmented by line drawings supplemented by an exploded drawing. The explanatory text is as clear as the artwork.



CLYMER

Clymer's current list of marine shop-manuals covers inboard, outboard, stern-drive, and diesel engines. Thirty years' worth of Honda outboards, for example, is packed into a single volume. Moreover, Clymer's "Pro Series" provides technical information for numerous brands (like Seagull) no longer manufactured.

territory, Clymer divided its Honda manual into 14 chapters and an index, then added service information specific to 2000–05 models, and 25 pages of wiring diagrams. Page count for all this material is 564 (not including front matter). The Honda manual contains exploded drawings and line art, but proportionately far fewer photographs; too many of the graphics are sized considerably smaller than those in the Seagull book, and unlike the latter, too few of them show hands at work.

Those shortcomings may be a result of Clymer's acquisition by conglomerate Penton Business Media. Or, they may simply represent hard-nosed decisions to control publishing costs to stay competitive in the technical-manuals consumer market, where Clymer is by no means the sole player.

That said, Clymer manuals remain a valuable resource for the marine industry: any given service yard is storing, maintaining, and repairing boats powered by a broad sampling of inboards and outboards of varying ages. Some yards may be motor or engine dealers, but only for, at most, a few brands.

At IBEX 2012, Clymer displayed a generous array of its offerings at a booth in the exhibit hall. Assuming the company will be back in the hall for IBEX 2013, you can browse

Clymer's publications as you might in a bookstore or library. Clymer's venerable Seagull handbook, though, is history; Seagulls currently share space with dozens of gone-by brands packed into the *Old Outboard Motor Service Manual, Volume 1, Prior to 1969*, one of nine specialty marine titles in Clymer's "Pro Series."

Contact Clymer, a division of Penton, at 800-262-1954 or 913-967-1719, and on the website clymer.com.

—Paul Lazarus, Senior Editor

Go-Anywhere Diagnostic Software

While working on a project in Panama recently, I watched a technician diagnose a poorly running outboard motor. In the 1980s and '90s this might have involved a multimeter, a timing light, and an analog peak voltmeter to test various components of the engine's ignition system, and prior to that, diagnostics relied heavily on an individual mechanic's experience and intuition. Thanks to powerful miniaturized electronics, the technician I was with had access to diagnostic software, even in this remote Panamanian location. He was able to connect a laptop to the engine's ignition system through a patch cable, and then, running proprietary software from the engine manufacturer, he could read various operating parameters and fault codes. This is the standard approach today for most engine dealers, not to mention virtually every automobile dealership and corner garage.

I marveled at how far we've come and reflected on how, as a budding outboard mechanic, I could barely have dreamed of such push-button diagnostic capabilities. As envious as I was of the technological advances he could apply to the problem at hand, I couldn't help but notice that he was struggling to simultaneously balance

the computer and his tools while shading the screen from the sun. It was awkward, and then it all went horribly wrong when a tropical deluge let loose, dousing the engine and laptop, as well as the technician, forcing him to scramble for shelter after hurriedly disconnecting the cord from the power head.

I recently came across the next generation of engine diagnostic tools, the Sierra Touch and Test System (STATS) from Teleflex. The STATS is an electronic diagnostic tool that offers all the capabilities of the aforementioned laptop loaded with proprietary engine-manufacturer software with two significant differences: One, it's a purpose-made, rugged, shock-resistant, handheld, water-resistant tool specifically designed for the role—sort of an oversized digital multimeter with a touch-screen. Two, it's available to any service technician, regardless of whether he or she is a franchised dealer for the engine in question, or an independent.

Now, rather than lugging around a vulnerable and costly laptop, a technician can quickly and easily attach the STATS to an engine and work through intuitive touch-pad controls, and a daylight-readable 6" (152mm) monochrome Q-VGA screen. Power is supplied by the engine being tested, by a separate battery, or by 120V household current through an included adapter.

The system is designed to work with most major outboard and personal watercraft brands and can be purchased as a bundled package of pre-loaded software and connection cables, or purchasers can pick and choose which engines they wish to interface with, including BRP, Mercury/MerCruiser, MEFI, Suzuki,

The Sierra Touch and Test System (STATS) diagnostic software, available for most common outboard motors and personal-watercraft engines, is delivered in a rugged, compact housing with a 6" (152mm) monochrome Q-VGA screen and touch-pad controls.



STEVE D'ANTONIO



The STATS system comes with plug adapters specific to the models the buyer intends to service. The brand-specific software packages can be updated or new models added via the Internet by connecting the STATS unit to a computer through a USB cable.

and Yamaha as well as Kawasaki, SeaDoo, and Yamaha personal watercraft. Software updates and additional

model packages can be downloaded via the Internet by connecting to a computer through a STATS USB interface cable.

Teleflex has established a STATS support team that, among other things, is available to answer user questions and provide software updates, while working on adding new models and manufacturers to the product's capabilities.

For more on the STATS, visit teleflexmarine.com or call 217-324-9400.

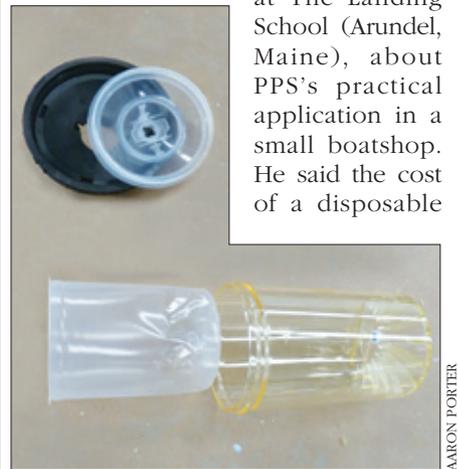
—Steve D'Antonio, Technical Editor

Making Disposable a Virtue

In this era of growing environmental awareness, it makes intuitive good sense to move away from disposable products whenever we can. However, 3M's Paint Preparation System (PPS) line of disposable containers—marketed through the company's automotive division but applicable for marine finishes including gelcoat—minimizes wasted paint, and significantly reduces solvent use by eliminating cleanup of conventional pressure pots. Simply put, the system comprises five different sizes of reusable rigid plastic cups, and disposable liners and lids that clamp to the appropriate cup and marry to nearly any spray gun.

I first saw the lineup of cups, clamps, liners, and lids on the show floor at IBEX 2012. Intrigued, I asked Chris Audy, head composites instructor

at The Landing School (Arundel, Maine), about PPS's practical application in a small boatshop. He said the cost of a disposable



AARON PORTER

The Paint Preparation System (PPS) from 3M includes reusable plastic clamps (black) and rigid pressure cups (translucent yellow) to house disposable plastic lids and cup liners. The units come in five different sizes and can save on the cost of conventional metal pressure pots and reduce solvent use by nearly eliminating the need for tool cleanup.

liner and lid for the 28-fl-oz (850 ml) cup is about \$3. But it allows him to reduce cleaning time and solvent use to a minimum, as the liner is simply disposed of and the gun requires minimal cleaning after use. In addition, by replacing conventional pressure pots with the lined transparent cups, if something unintentionally catalyzes in the cup, you just pull the liner; you don't sacrifice an expensive metal pressure pot to the error.

Audy said he uses the system, which includes cups as small as 3 fl oz (90 ml), to spray a variety of paints including Awlgrip and Duratec. The only modification he makes for thicker gelcoat is to remove the 200- or 125-micron filter built into each disposable lid, and to use a rigid plastic pressure cup at 7 psi. "So, if you're a small shop, you can save \$1,000 on a pressure pot for gelcoat," he said. The results his students attain spraying gelcoat on small parts and tooling are impressive.

Acetone is the other big saving the PPS delivers for his shop, where 12 students produce 12 small boats plus tooling and plugs for three models during a 10-month program. Audy said, with that production rate and the disposable liners, he uses so little of the solvent that it doesn't trigger reporting requirements, and disposal costs are kept to a minimum.

For additional savings on solvent, Audy shoots with disposable spray

heads from 3M. The Accuspray gun model HGO9 is fitted with a hard plastic nozzle and pressure-pot attachment. The \$20 atomizing spray head can be cleaned and reused for a number of jobs, but its easy removal simplifies maintenance. "Your cleanup is to wipe the needle," Audy said. Attainable finish quality is high.

For more information, go to 3m.com.

—Aaron Porter, Editor

PBB



Top—The PPS units attach directly to most spray guns or through adapters available from 3M. **Above**—The Accuspray model HGO9 from 3M offers additional disposability in its hard plastic atomizing spray nozzle, which removes easily and can be reused, or replaced for \$20.

AARON PORTER (BOTH)