The FloTool shaker siphon (above) and Parker LifeGuard bested their counterparts in the fuel-spill protection evaluation to notch spots on the 2016 Editors' Choice lineup.

The Year's Top Gear

PS *names 2016 Editors' Choice lineup.*

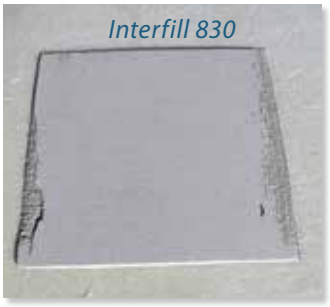
Each fall, *Practical Sailor* editors pick through the best test products of the past year to find the cream of the crop for our *PS* Editors' Choice roster. To be named to the list, products must earn the Best Choice rating among their respective peers and clearly stand out above others in their field.

Chosen from test products covered in the September 2015 through the August 2016 issues, this year's Editors' Choice picks represent nearly every category of marine gear—from safety to maintenance to rigging and deck gear. These products are the if-money-were-no-object picks. Budget-minded and small-boat sailors may be better suited with our Budget Buy or Recommended picks in certain test categories; for more on those products and details on testing protocols, refer to the online archive articles cited in this report.

MAINTENANCE
FUEL OVERFILL PROTECTION

In the December 2015 issue, we mounted a search for products that would prevent the long-standing problem of fuel spills during fillups. Testers evaluated nine different solutions.

The standout jerry-can spill preventer was the FloTool Shaker Siphon from Hopkins Tools (model 10801). It was surprisingly fast, safe, and did not require holding the can. A few vertical shakes of the device get the shaker siphon's flow started. The claimed flow rate is 3.5 gallons per minute, but in tests, we averaged 2.7 gallons per minute. That's comparable to the new CARB jerry cans, without the holding and dripping. Its performance and ease of use earned the FloTool the Editors' Choice pick for a jerry-can spill preventer. And with its budget-friendly $7 price tag, every boat should have one coiled away, just in case.


Interfill 830


Interfill 833

There are two types of devices that prevent spills at the fuel vent: in-line traps that stop the fuel before it comes out of the vent and devices to catch it after it comes out. We prefer the inline trap design, which keeps fuel vent filters from being contaminated with fuel in the event of an overfill.

The top performing vent-spill preventer in our test, and the Editors' Choice pick, was Parker Filtration's LifeGuard LG100 three-stage separator ($150). Rated for 50 gallons per minute, it is designed to collapse fuel foam and return it to the tank, as well as prevent surges from overfilled tanks. We've used one for years, and it has performed perfectly. Parker also makes the LG50, which is rated for 20 gallons per minute, large enough for most sailors' needs.

PRE-THICKENED EPOXY FILLER KITS

Breathing life into an older fiberglass boat always entails more work than expected, but for a boat owner with the time, skill, and do-it-yourself inclination, it is often worth the effort. Whether the refinishing project is big or small, you'll need a good working knowledge of filling and fairing products to address dings, scrapes, gouges, cracks, and crazing.

Using a pre-thickened, epoxy-filler kit (instead of a mix-your-own) offers several benefits for the DIYer, including batch-to-batch hardness consistency, working time, and adhesive reliability.

In the July 2016 issue, we compared six pre-thickened, kit-type fillers and fairing compounds that are specifically designed for marine use; we tested kits from Interlux, System Three, Mas, and Jamestown Distributors (Total Fair).

Continued on page 8

Photos by Ralph Naranjo, Brion Toss, and Drew Frye

Rigging and Deck Gear

Testers reviewed a slew of rigging and deck gear products during the last year—ranging from furling blocks to lifeline chafe protection and rigging terminals. Here are our top picks and this year's Editors' Choice rigging and deck hardware.

1. *Articulating leads (from left): Nautos 92338, Selden 538-972, Nautos HT-450A, and Spinlock SPWL2.* ***2.*** *Deadeye leads (from left): Nautos HT-455, Selden 480-501-01R, and Spinlock SPWL1.* ***3.*** *Fixed leads (from left): Garhauer SB20-13, Schaefer 300-34, Garhauer D, and Harken 168NP.* ***4.*** *Outside-the-stanchion leads (from left): Schaefer 506-44, Harken 7403, and Garhauer SB-3.* ***5.*** *Lead blocks (from left): Harken 7402, Nautos 92088, Garhauer SB-25, Harken 7405, Schaefer 300-35, and Harken 7401.*

FURLING BLOCKS

Furling lines are typically shunted outboard, along the stanchions, in order to keep the decks uncluttered. Low-drag fairleads can minimize the friction in the run, but which ones do it the best? In the October 2015 issue, we took a look at 20 different blocks and deadeyes to find those that were the most efficient and would be best suited for a 35- to 40-foot cruising boat.

Testers considered each product's design, size, weight, construction, and the friction each added to an evenly tensioned line. We also took a close look at chafe points, clamp ruggedness, and ease of inspection. Bench testing was supplemented with on-board "real-world" comparisons.

No single fairlead fit all the demands of running a furling line from the stem to stern, so we broke the comparison into specific uses and selected top performers for each category as Editors' Choice picks. In some cases, there were several options in a near dead heat, but after considerable debate, here's how the chips fell: The Garhauer SB-25 ($40) was our top articulating lead block; the ratcheting Harken 7402 was a favorite for the cockpit end; the Nautos HT-450A ($21) was our favored limited articulating block (middle section); the Schaefer 300-34 ($42) was our favorite low-profile, inside-the-stanchion block; the Spinlock SPWL1 ($16) was our top deadeye-style block; and the Harken 7403 ($38) was our best product for use outside of the stanchion.

RIGGING TERMINALS

Swageless wire-rope terminals have long been a favorite piece of rigging kit among all kinds of sailors. These terminals are inspectable, reusable, and can be assembled with simple hand tools. But for all of their acknowledged advantages, data is scarce about their mechanical efficiency. How much, if any, do they weaken the wire rope they are attached to? To answer this question, *Practical Sailor* worked with well-known rigger Brion Toss of Port Townsend, Wash., to evaluate and test to destruction Hi-Mod (Hayn), Sta-Lok, and Norseman terminals, the three major brands used on sailboats. The product reviews and test report ran in the June 2015 and April 2016 issues.

The Hayn Hi-Mod and Sta-Lok terminals were neck-and-neck in most tests, but once all the torquing and breaking was done, the Hi-Mod terminals got the Editors' Choice pick (by a nose) because they were the easiest to work with.

Rig failures are far more often the result of fatigue, corrosion, etc., than of terminals' mechanical inefficiency. But it makes sense to start with the most efficient terminals you can, to keep your rig as far as practicable from the possibility of failure.


3M Dual Lock


Tiger Magic

Onboard Amenities

Most of us have low expectations of "Velcro" type products, especially for onboard uses, so *PS* testers set out in the April 2016 issue to find out whether any of them actually work.

We tested seven self-adhesive, Velcro tape products—including products with textile hooks and loops, molded hooks with textile loops, and plastic molded hooks on both sides—from three makers, 3M, Velcro, and Perfect.

The test samples were evaluated for shear and separation strength. Several products were also tested on board a test boat.

The products quickly sorted themselves into two groups: those with fabric loops and Scotch Extreme/3M Dual Lock. Instead of using fabric loops on one side, both sides of the Scotch Extreme have molded plastic hooks that resemble mushrooms and give an audible "click" when engaged.

The fabric-loop products are fine for jacket cuffs, canvas flaps, and clew straps, all of which rely on shear strength and easy removal by peeling. The Scotch Extreme, in contrast, has mediocre peel and shear strength, but massive resistance to pulling straight apart. It does not creep, it snaps securely into place, and if the bonding is at least 2 square inches, you need a screwdriver to pop it open. Its adhesive performed exceptionally well (for years), and it left behind no residue.

Scotch Extreme, which is not a replacement for Velcro, but rather a different product with different strengths, is *PS* Editors' Choice for heavy-duty mounting of rigid objects and panels.

RETAINED HEAT COOKER

Crock-Pots and rice cookers are time-savers, but there's another way to slow-cook foods, one that's easily portable and doesn't require a constant electrical source. Retained-heat (thermal) cooking is the practice of heating a pot to boiling, simmering for just a few minutes, and then placing the pot in a well-insulated container to finish cooking with the heat that the pot and contents already have. In the May 2016 issue, we took a look at thermal cookers to see which one was the best option for weekend cruisers and liveaboards. We tested several commercial products, including the fabric Heylo Bag and Wonderbag and the Tiger Corp. and Thermos vacuum cookers, as well as a few do-it-yourself devices.

The best in its category, the 6-liter Tiger Thermal Magic Cooker (NFI-A600) garnered a spot on the Editors' Choice list. The stainless pot fits inside a stainless vacuum bottle that is sealed with an insulated, locking lid. Testers found the compact Tiger system to be the easiest to use and safest against spills. Priced at $275, it would be a good choice for passagemakers and liveaboards who would use it often.

A retained-heat cooker is a useful addition to both the galley and the home kitchen. In addition to the fuel/power savings and reduced time tending to the stove, you don't have to worry about burning food with a thermal cooker since there is no flame. Thermal cooking also makes for less heat in the galley in the summer and less moisture and carbon dioxide in the winter. Thermal cooking is great for cooking stews, casseroles, soups, desserts, and other dishes.

Photos by Drew Frye and courtesy of manufacturer

Continued from page 6

Our evaluation examined key features of application: sandability (shaping), resistance to sag, cure time, hardness, and adhesion.

By the time the sanding dust had settled in our tests, Interlux had swept the field, earning the maker's three pre-thickened kits a place on our Editors' Choice list. Interlux's Watertite, Interfill 830, and Interfill 833 epoxy fillers each stood out in testing. Which Interlux kit is right for you will depend on the project at hand. Watertite is an epoxy filler that comes in an easy-to-mix 1:1 ratio; Interfill 830 is a lightweight profiling filler; and Interfill 833 is a creamy fairing compound that fills pinholes as well as larger scrapes and gouges.


Goldshield GS75

The 830 profiling compound is easy to apply, easy to sand, and is sag resistant. It's the right choice for major keel fairing and for coping with larger surface-area imperfections.

Interfill 833 is a less viscous, creamier epoxy putty that is optimized as a cure for scratches and scrapes above or below the waterline. A 50/50-mix filler, the 833 is more of a glazing compound than a high-build filler. It is often used for the second stage in a fairing project, after the surface has been profiled with Interlux 830. Testers liked the 833's sandability, adhesion, and low void content.

Watertite was the easiest to spread and delivered the hardest surface cure. It is a great choice for final fairing (glazing) above or below the waterline and makes for a good, all-purpose fairing compound.

CLEAR-VINYL PROTECTANTS

When choosing protection for your clear-vinyl windows, you want a product that will work for the long haul. In the January 2016 issue, we reported on the two-year performance of a host of clear-vinyl sprays and creams in our ongoing, five-year test. Imar Strataglass 302 cream and Star brite View Guard liquid protectant, the top two-year performers, also earned places on our Editors' Choice 2016 lineup.

The test field comprised spray clean-

Testers found that a combination of Star Tron and Biobor JF were the best overall additive choice for diesel fuel storage.

Photos by Drew Frye

ers, which need to be applied every few weeks and focus on cleaning and shine, and creams or pastes, which are applied quarterly, provide a thicker film, and require more effort to apply; all claim ultraviolet (UV) protection.

We tested the protectants on O'Sea and Strataglass coated vinyls, Regalite and Crystal Clear uncoated vinyl, and on old, restored vinyl. The test panels were subjected to 24/7 weather exposure, and those that rated well after four months advanced to onboard testing.

The cream Imar Strataglass 302 Protective Polish cleaner-wax led the cream protectant field, producing a smoother feel and offering a more durable water repellency and dirt shedding. It easily produced a mirror gloss and was among the most effective products for restoring gloss. At nearly $30 for a 16-ounce bottle, it is expensive, but you only use it a few times each year, so the supply should last. It is the only polish endorsed by the maker of Strataglass vinyl for use during the warranty period.

The inexpensive Star brite View Guard cleaner (64 cents per ounce) was handsdown the best liquid protectant at the two-year mark. It polished to a nice shine and was a standout for its ability to shed water and improve wet-weather visibility; it also was our favorite to use on the test boat. While all of the cleaners produced an acceptable shine, the View Guard was superior in both ease of cleaning and repelling water.

A practical routine for the typical weekend/seasonal sailor is to use the Star brite View Guard in-season, when the windows are cleaned more often, and then follow it with the Imar cream in the spring, mid-season, and fall.

MOLD & ALGAE CLEANERS

Those black spots on the deck, lines, and canvas probably aren't mildew. They are more likely black algae and lichens, and you'll need a different arsenal to take them out than one you'd use against mildew. In the September 2015 issue, we took a look at mold and algae cleaners/protectants based on quaternary amines, both silicone and benzyl substituted. Silicone quaternary amines offer better water resistance, while more common benzyl amines (ubiquitous in non-bleach sanitizing products) offer better economy for cleaning and mildew prevention inside the boat. Testers compared the performance of Elite Marine Shield and Gold Shield, two silicone-substituted quaternary amines, with two benzalkonium chloride (BAC)-based swimming pool algae eliminators. (For an explanation of quaternary amines, and links to past reports on mildew treatment, see the "Confounding Mildew Wars," Nov. 4, 2013, blog post.) Our benchmark for this type of protection is our DIY blend, "Formula B," which costs just pennies to make (see the homemade mildew preventers blog post online, Oct. 14, 2013).

We tested each product on Sunbrella, dock lines, rain gear, shoes, and nylon PFDs that were stored in damp locations, both exposed to the elements and sheltered. The test found that Goldshield was the most effective mold and algae preventative for treating acrylic, nylon, canvas, and interior upholstery, earning it the *PS* Editors' Choice honor.

Based on a silicone-substituted quaternary amine salt, Goldshield GS5 and GS75 claim to have antimicrobial properties that can last up to 50 laundry cycles. We tested the concentrated GS5, and it performed very well on life jackets, preventing all growth, even after it was exposed to a full year of rain and partial sun. It showed better wash-off resistance on polyester and nylon when exposed to rain than other tested formulas. It is available both in ready to use form (GS75; 1-percent active; $195 for one gallon) or as a concentrate (GS5; 5-percent active; $20 for a 32-ounce spray bottle; or $195 for one gallon, which provides 6.5 gallons of ready to use product at .75-percent active).

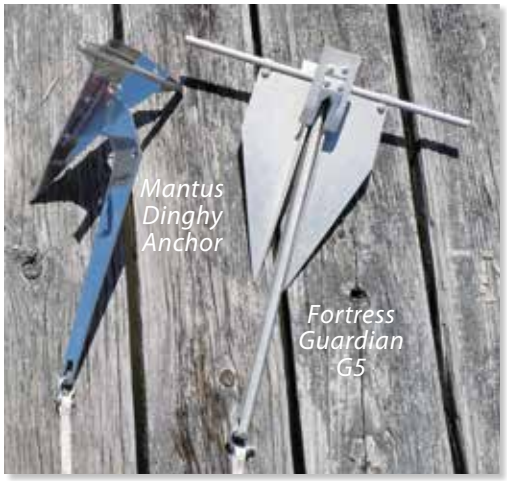
We still recommend Formula B for treating cotton and wood.

PS evaluated a host of clear-vinyl window cleaners and protectants in the January 2016 issue. Two earned spots on this year's Editors' Choice list.

OVERALL FUEL ADDITIVE

A November 2015 article examined fuel additives that offer the best overall protection for long-term storage stability in both gasoline (E-10) and ultra low sulfur diesel (ULSD). For the report, we followed standard test methods for fuel storage stability. The test field was a cross-section of products claiming to improve storage stability as well as performance additives that are often used as storage additives.

In the end, the best overall choice for a diesel storage additive was the combination of Star brite's Star Tron Diesel and Hammonds' Biobor JF. In biocide testing trials (Star Tron is not marketed as a biocide), Star Tron showed properties that complimented Biobor JF (killed different strains), making the pair a powerful one-two punch. While this blend requires adding two




ACR Firefly Pro Waterbug

products, based on our testing, it is the Best Choice overall for a diesel additive and deserving of a place on the Editors' Choice roster. Star Tron provides complimentary anti-bug activity, good anti-aging properties, and superior corrosion protection.

For gasoline storage, testers liked Hammonds Biobor Ethanol Buster (EB), which also earned a spot in the Editors' Choice lineup.

ANCHORING AND MOORING
DINGHY ANCHORS

Sailors spend considerable time pondering their anchoring arsenal for the mothership, but what about the dinghy? In the December 2015 issue, we evaluated five small, easy-to-manage anchors weighing 2 to 3 pounds. The test field included: the Guardian G5, a scaled-down Fortress; the Lewmar Claw, a descendant of the Bruce anchor; the new Mantus Dinghy Anchor, a scoop-type anchor; a 1.5-pound Seafit Folding Grapnel; and a typical, 8-pound mushroom anchor.

Our test protocol, similar to tests we have done on primary anchors (see *PS* February 2015 online), was carried out using multiple boats, including a 34-foot catamaran. Each anchor behaved similar to its big brother, with the caveat that the smaller anchors have difficulty with hard bottoms and clog more easily with weeds and debris.

The Mantus Dinghy Anchor clearly stood out in tests, earning it a comfortable spot on our Editors' Choice lineup. The small Mantus offered strong holding and perfect veer behavior, making it a good choice for anchoring the dinghy out. The Mantus is the only 2-pound anchor we've ever felt safe leaving the dinghy attached to.

We tested the stainless version ($170), which features a clever and simple mechanism for disassembly and flat storage. However, the welded, one-piece galvanized version ($48) strikes us as more practical for the sailor looking for a dinghy anchor.

SAFETY
MOB LIGHTS

A well-prepared offshore sailor will carry essential personal safety gear on him at all times while on deck during a passage; this includes distress-signaling devices. In the February 2016 issue, we scrutinized six man-overboard (MOB) lights from ACR, Electric Fuel, North American Survival Systems, and West Marine. While there are a variety of compact lights that could be used as man-overboard locator lights, we focused our test on products designed for this use.

The personal distress light evaluation included tests in the lab and in the field, including an on-the-water visibility test from 0.62 nautical miles away. We compared the effectiveness of each light's flash pattern and rated their luminance, omnidirectional visibility, means of attachment, and construction quality. We favored 360-degree horizontal visibility, hands free self-alignment, and easy attachment and wearing options.

The market's most prominent company in the test was ACR, so it was no surprise that the company's LED Firefly Pro Waterbug was testers' top pick, and the only safety product to make it on the Editors' Choice list this year.

The water-activated Firefly Pro Waterbug has a robust plastic housing that meets military specifications and has both international (SOLAS) and U.S. Coast Guard approval. In addition to its 60-cycles-per-minute, LED strobe, the unit will deliver repetitive SOS signals and can even be turned on as a continuously operating white light. Another big plus is the extended battery life; in tests, it ran in strobe mode on two AA Lithium batteries for 54 hours. The second brightest light in our tests, the Firefly Pro earned top billing because of its overall performance and water-activation feature.

Photos by Drew Frye and Ralph Naranjo

CONTACTS

3M, 888/364-3577, www.3m.com

ACR, 954/981-3333, www.acrartex.com

AP GOLD SHIELD, 516/375-2927, www.goldshield1.com

BIOBOR, www.biobor.com

NEW ENGLAND ROPES, 508/678-8200, www.neropes.com

GARHAUER, 909/985-9993, www.garhauermarine.com

HARKEN, 262/691-3320, www.harken.com

HI-MOD (HAYN), www.hi-mod.com

HOPKINS, 800/835-0129, www.hopkinsmfg.com

INTERLUX, www.yachtpaint.com

MANTUS ANCHORS, 855/262-6887, www.mantusanchors.com

NAUTOS, 954/235-2674, www.nautos-usa.com

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SCHAEFER, 508/995-9511, www.schaefermarine.com

SPINLOCK, 401/619-5200 www.spinlockusa.com

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