Photo: Tim Uhler

18-Volt Cordless Recip Saws

Power and runtime separate the best from the rest

BY MICHAEL SPRINGER

Five years ago in TOOLS OF THE TRADE, a test of the first generation of lithium-ion-powered reciprocating saws determined that for getting the job done quickly, 36-volt tools were the ones to buy—most 18-volt models weren't up to jobsite challenges. But I'm happy to report that advancements in motor and battery technology make some of the newer 18-volt models capable of serious work. They're worth considering to add cordless convenience to your demolition and other recip-saw jobs.

I tested the tools in kit form with a battery, charger, and carrying case (where available). Keep in mind that these saws are also sold without batteries or chargers (referred to as "bare tools") for users who already have batteries and chargers from the same manufacturer.

If that's your situation, you may decide not to buy the tool that we thought was the best. Instead, you may just need to know whether your brand is good enough to get the job done. I've included performance details and provided complete information on each saw we tested.

USING THE SAWS

During my time with these tools, I evaluated and tested each one. I used 6-inch-long, 6-TPI Lenox blades (B656R) to cut

Bosch
CRS180 K

Battery: 18 volts; 4.0 Ah
Battery gauge: 3 bars; on battery
Weight: 7.66 pounds
SPM: 0–2,400; 0-2,700
Stroke length: 1 ⅛"
Blade clamp: External metal twist collar; one-hand operation
Shoe: Non-adjustable; 9/16" of blade unused behind shoe
Other features: Lower speed setting enabled by trigger-limiting switch (not lower gear)
Web price: Bare tool, $160; kit with battery, charger, and case, $250
Country of origin: China
Performance: Power—fifth place, 63% of best; runtime—third place, 91% of best

Comments: Medium-duty saw with medium-high vibration—the best saw outside of the heavy-duty models."
Pros: Long running. One-handed blade changes. Lower speed setting nice for controlled cutting. Comfortable one- or two-finger trigger.
Cons: Fixed-position shoe limits versatility, blade performance, and economy. Have to touch hot metal clamp collar to remove blade. Difficult to steer at times—cut crooked more than other saws in the test. Longest charging time at 2 hours, twice as long as most others.

DeWalt
DCS385 L

Battery: 18 volts; 2.0 Ah
Battery gauge: No
Weight: 7.21 pounds
SPM: 0–3,000
Stroke length: 1 ⅛"
Blade clamp: Recessed with lever release; two-hand operation; 4 position blade slots
Shoe: Adjustable to 3 positions; minimal 3/16" of blade unused behind shoe
Web price: Bare tool (DC385B), $93; kit with battery, charger, and case; $260
Country of origin: Mexico
Performance: Power—fourth place, 66% of best; runtime—tenth (last) place, 45% of best

Comments: Heavy-duty saw with high vibration—gets the job done but doesn't do it for very long.
Pros: Flexible-fuel tool—comes with Li tower pack but also compatible with brand's common NiCad batteries. Excellent blade economy with very few of the teeth wasted behind the shoe. Nice handle comfort with rounded top for different handgrip positions.
Cons: Shortest runtime. Lowest amp-hour battery in test. High-vibration tool. No battery gauge. Loose shoe wiggles around in use and can contact blade

DeWalt 20V MAX
DCS380 M1

Battery: 18 volts; 4.0 Ah
Battery gauge: 3 bars; on battery
Weight: 7.27 pounds
SPM: 0–3,000
Stroke length: 1 ⅛"
Blade clamp: Recessed with lever release; two-hand operation; 4 position blade slots
Shoe: Adjustable to 3 positions; minimal 3/16" of blade unused behind shoe
Web price: Bare tool DCS380B, $126; kit with battery, charger, and case, $275
Country of origin: Mexico
Performance: Power—fourth place, 75% of best; runtime—fifth place, 82% of best

Comments: Heavy-duty saw with high vibration—a capable second-place tool that's a little rough around the edges.
Pros: Fast cutting. Long running. Excellent blade economy with very few of the teeth wasted behind the shoe. Nice handle comfort with rounded handgrip top for different thumb positions.
Cons: High-vibration tool. Loose shoe wiggles around in use and can contact blade.

Hitachi
CR18DSL

Battery: 18 volts; tested with latest 3.0 Ah slide-pack battery
Battery gauge: 2 bars; on tool
Weight: 7.81 pounds
SPM: 0–2,300
Stroke length: 1 1/8"
Blade clamp: External clamp with small release lever; two-hand operation
Shoe: Adjustable; requires loose hex wrench; 9/16" of blade unused behind shoe
Web price: Bare tool, $130
Country of origin: China
Performance: Power—tied for last place, 46% of best; runtime—seventh place, 64% of best

Comments: Medium-duty saw with low vibration—slow, steady, and reliable.
Pros: Gentle, low-vibration saw especially comfortable to operate
Cons: Cuts slowly. Requires loose hex wrench to adjust shoe—tool-free adjustment is preferred. One- or two-finger trigger has a hard edge below that pushes into finger during two-finger use.

Makita
BJR181

Battery: 18 volts; 3.0 Ah
Battery gauge: None
Weight: 8.22 pounds
SPM: 0–2,900
Stroke length: 1 1/8"
Blade clamp: External rubber-covered twist collar; one-hand operation
Shoe: Adjustable to five positions; 5/8" of blade unused behind shoe
Other features: Large hanging hook; LED headlight with 12-second delay
Web price: Bare tool, $158; kit with two batteries, charger, extra-long plastic case, $329
Country of origin: China
Performance: Power—tied for last place, 46% of best; runtime—ninth place, 46% of best

Comments: Light-duty saw with medium vibration—doesn't have enough to offer.
Pros: Easy one-handed blade changes with comfortable rubber-covered collar. Nice hang hook and headlight. Long case allows storage with 6-inch blade attached to saw. Short battery charge time, just under the one-hour time of most others.
Cons: Cuts slowly and bogs down under pressure. Short runtime. No battery gauge.

Metabo
ASE18LTX

Battery: 18 volts; tested with latest 5.2 Ah slide pack battery
Battery gauge: 4 bars; on battery
Weight: 8.23 pounds
SPM: 0–2,700
Stroke length: 1 3/16"
Blade clamp: Recessed with lever release; two-hand operation
Shoe: Adjustable; requires onboard hex wrench; 3/4" of blade unused behind shoe
Web price: Bare tool, $148
Country of origin: China
Performance: Power—tied for last place, 46% of best; runtime—second place, 93% of best

Comments: Light-duty saw with low vibration—runs forever, but a bit too slowly.
Pros: Long running. Low vibration.
Cons: Cuts slowly and bogs down under pressure. Have to hold in safety lock-off button every time you want to pull the trigger. Requires hex wrench to adjust shoe—tool-free adjustment is preferred. The combination of a rear-facing battery-release button and battery removal direction toward the front of the tool causes the battery to disengage and sometimes fall out dangerously whenever your body pushes forward against it while cutting. Long charging time of one hour, 55 minutes—almost double that of most others.

Milwaukee 2620-21

Battery: 18 volts; 3.0 Ah
Battery gauge: 4 bars; on battery
Weight: 8.25 pounds
SPM: 0–3,200
Stroke length: 1"
Blade clamp: Recessed with slide release; two-hand operation
Shoe: Non-adjustable; 5⁄8" of blade unused behind shoe
Web price: Bare tool (2620-20), $95; kit with charger, battery, and case, $292
Country of origin: China
Performance: Power—second place, 85% of best; runtime—sixth place, 68% of best

Comments: Heavy-duty saw with medium-high vibration—a refined second-place tool that only lacks an adjustable shoe.
Pros: Fast cutting. Nice handle comfort with rounded handgrip top for different thumb positions.
Cons: Fixed-position shoe limits versatility, blade performance, and economy.

Milwaukee FUEL Brushless 2720-21

Battery: 18 volts; 4.0 Ah
Battery gauge: 4 bars; on battery
Weight: 9.06 pounds
SPM: 0–3,000
Stroke length: 1 1⁄8"
Blade clamp: Recessed with slide release; two-hand operation
Shoe: Adjustable to eight positions; 11⁄16" of blade unused behind shoe
Other features: Only tool in the test with a brushless motor; large hanging hook; LED headlight with 11-second delay
Web price: Bare tool (2720-20), $249; kit with charger, battery, and case, $371
Country of origin: China
Performance: Power—first place; runtime—first place

Comments: Heavy-duty saw with medium vibration—this high-tech brushless motor tool is top performer all around.
Pros: Fastest and longest-lasting tool in test. Most manageable vibration among the heavy-duty saws. Nice hang hook and headlight.
Cons: Longer-than-average charge time of 1 hour, 20 minutes, one-third longer than most others. Heaviest tool—a negative for portability, but extra mass a plus for faster cutting and vibration reduction.

Panasonic Dual-Voltage EY45A1 LS1G

Battery: 18 volts; 4.2 Ah
Battery gauge: None
Weight: 7.45 pounds
SPM: 0–2,800
Stroke length: 1 1⁄8"
Blade clamp: External rubber-covered twist collar; two-hand operation
Shoe: Non-adjustable; excessive 1" of blade unused behind shoe
Other features: Shock-absorber shoe design; thermal-overload and spent-battery warning lights; IP56 dust and water-resistance rating
Web price: Kit with charger, battery, and case; $390
Country of origin: China
Performance: Power—seventh place, 51% of best; runtime—fourth place, 90% of best

Comments: Medium-duty tool with very high vibration that makes it difficult to use.
Pros: Long running. Flexible-fuel tool—fits several of the brand's 14.4- and 18-volt battery packs for more versatile use as an add-on tool. Best tool case in the test.
Cons: Have to hold in safety lock-off button every time you want to pull the trigger, which is a constant hassle. Fixed-position shoe limits versatility, blade performance, and economy. No battery gauge. Shock absorber design adds excessive vibration while robbing control. Have to touch hot blade when changing.

Ridgid
R8641 B

Battery: 18 volts; tested with 4.0 Ah battery
Battery gauge: 4 bars; on battery
Weight: 7.66 pounds
SPM: 0–3,600
Stroke length: ¾"
Blade clamp: External metal twist collar; two-hand operation
Shoe: Adjustable to six positions; shoe plate can lock in three angle positions; excessive 1 ⅛" of blade unused behind shoe
Other features: Orbital action; LED headlight with no delay with separate trigger switch
Web price: Bare tool, $129
Country of origin: China
Performance: Power—sixth place, 52% of best; runtime—eighth place, 62% of best

Comments: Light-duty tool with low-medium vibration—has nice features but the overprotective battery won't let them work.
Pros: Orbital action speeds up the performance. Nice shoe angle locking feature and headlight.
Cons: An unpredictable performer plagued with sudden stalling. Too finicky in use as the battery pack's protective circuit shuts down often. When all is going well, it will cut at a fast pace—especially in orbital mode—but it is always right on the edge of unexpectedly stalling with no warning, so it's difficult to get much done with this saw. Have to touch hot metal clamp collar to remove and install blade.

through blade-wrecking test planks similar to the ones I used for my reciprocating-saw-blade test in the Winter 2012 issue of TOOLS OF THE TRADE. The planks are made from a piece of OSB sandwiched between 2x6s and capped with a layer of ⅝-inch drywall and more OSB. The central piece of OSB is flanked by 12 rows of nails glued rigidly into grooves—10 rows of 16d commons, one of 16d sinkers, and one of 8d sinkers. The result is that each pass of a saw blade though these planks cuts 12 nails.

I clamped the planks into a waist-height vise so I could really lean into the cuts. All the tools could cut through these test planks, but while some sprinted, others made it only at a crawl. When I really pushed the tools, the important performance differences became evident.

As I tested the saws, I rated their performance in two ways (see charts on page 56). To rate power, I timed how long it took each saw to cut through a doubled 2x6. And to rate runtime, I counted the number of times each saw cut through a doubled 2x6 on a single battery charge. (Before every test, I put a new blade in each saw.)

My tests enabled me to classify the saws as light-, medium-, or heavy-duty tools. I also categorized them by how much they vibrate in use: low, medium, medium high, or high. Complete specifications and comments for each saw begin on page 50.

DUTY RATINGS

Power is important, but a reciprocating saw needs more than raw power to excel. Its ability to cut aggressively and for long periods of time relies on several other factors too: preventing the battery from overheating, having a long stroke length that clears sawdust quickly, and having vibration control that keeps the blade firmly in the bottom of the kerf.

I pushed the tools hard because that's the way they are used in the field. No one babies a reciprocating saw. Plus real-world use allowed me to separate them into three performance categories:

Heavy-duty saws could take as much force as I could apply and not stall or bog down dramatically, so pushing harder generally resulted in faster cutting. These tools cut the quickest and were the least temperamental; consequently, they set the standard overall. The dogged performance of the four Milwaukee and DeWalt tools earned them each a place in this category.

Medium-duty saws had a limiting pace that they couldn't be coaxed out of, but at least they acted predictably. Pushing harder didn't make them cut faster, but it didn't slow them down much, either. They take longer, but they get the job done, so one of these saws may be all that's needed for average tasks. Saws by Bosch, Hitachi, and Panasonic made the cut for this category.

Light-duty saws are more trying to use because when you push harder, their motor speeds (and their already-conservative cutting speeds) drop dramatically, and they stall frequently. These tools actually perform better if you let up on the pressure, but I find it difficult to use a saw that I have to baby while trying get the job done. The Makita, Metabo, and Ridgid saws all fell into this category.

1. The adjustable shoe of the Metabo locks in place with two set screws and a hex wrench, which can be stored in an onboard slot. A lever lifts to operate the blade clamp.

2. Large fold-out hooks on the Makita and Milwaukee Fuel allow you to hang the saws from rafters, ladders, or scaffolding. The hooks click into position or stow flat against the tool.

3. The multiposition shoes of both DeWalt saws and the Makita (shown here) lock in place with a sliding button mechanism.

4. The blade clamp on both DeWalt saws can hold a blade in four different cutting positions. An additional slot holds the blade perpendicular to the handle, and when the saw is held upside down, this position allows for closer flush cuts without bending the blade very far to get it flat to the cutting surface.

5. The Metabo and Panasonic (shown) saws have a spring-loaded trigger lock-off switch that must be pushed while pulling the trigger before the tool will turn on. These switches are a nuisance and require you to reposition your grip every time you start up the saw.

6. The Bosch has a fixed-position shoe and a metal blade-clamp collar. The clamp ejects the blade when you twist it and remains open until another blade is inserted, making it possible to change a blade with one hand.

7. The Hitachi's tiny spring-loaded lever pivots to release or lock the blade. It's wise to lock the lever manually, a two-hands operation, rather than rely on the small spring to secure the blade.

8. The multiposition shoes of the Milwaukee Fuel (shown) and the Ridgid lock in place with a lever clamp.

9. LED headlights are found on the Makita, Milwaukee Fuel (shown), and Ridgid saws. The Ridgid's light has a separate switch built into the handle for flashlight use without running the saw motor, while the other two have a built-in delay that keeps their lights on for a short while after a tap on the trigger.

10. Battery-mounted charge gauges allow you to check power without having to slide the battery into the tool. A tool-mounted gauge, such as the one on the Hitachi saw, displays the charge of any battery once it is inserted.

RUNTIME

It's not surprising that a battery with higher amp-hour ratings will run a saw for a longer stretch of time than one with a lower rating. In this sense, runtime tests are often a test of the battery, not of the saw.

So, instead of measuring how long a tool ran on a battery charge, I measured how much work each tool could do on a charge (see table on page 56). A tool that is a slow performer may actually run longer than a fast-cutting tool, but what's important is the work that results from the operating time. When fully loaded in 3-inch-thick cuts, even the best saws may cut for only five minutes before needing to be recharged.

VIBRATION

The trade-off between a powerful and a gentle tool is usually in how fast it cuts. For the sake of my carpal tunnel syndrome and bouts of tendonitis, I wish there were a fast-cutting tool that didn't vibrate a lot, but the fastest-cutting tools are all a bit on the brutal side.

Because the most comfortable tools are on the slow side, I'd rather endure a reasonable amount of vibration to get the job done faster instead of losing time waiting on a gentle tool to make the cut. Here's how the tested tools "shook out" in terms of overall felt vibration during many types of cuts:

Low: Hitachi, Metabo, and Ridgid
Medium: Makita, Milwaukee Fuel
Medium-high: Bosch, Milwaukee
High: both DeWalts and Panasonic

The easiest ways to reduce vibration are to secure your work as firmly as possible and to use a lot of force to push the shoe of the saw against the material being cut. Another technique is to reduce your feed speed or motor speed. Often, you can find a sweet spot where the vibrations cancel each other out, and reducing your feed pressure usually keeps the blade from pushing back toward you with so much force.

HOW NOT TO EASE VIBRATION

The Panasonic saw has a feature that causes uncontrollable vibration. Instead of having a rigid shoe that holds firmly against the work surface, this saw actually has little springs inside that provide shock absorber-type suspension to the shoe. This means that whenever the blade teeth bite into the wood and pull back toward the saw, instead of pulling firmly against the shoe's resistance to rip out the wood, the firmly anchored blade actually jerks the entire saw forward as the flex of the springs allows the shoe to move freely.

This action also makes it very difficult to slowly and carefully start cuts in wood or metal, because once the saw teeth get the slightest bite, the saw just bounces back and forth instead of moving the blade through the material.

Other than possibly replacing the springs with steel pins to negate this ill-conceived suspension design, there is no way around this excessive and needless vibration. Either you have to push

forward incredibly hard in an attempt to bottom out the springs, or you must hold the tool back with the minimum amount of force against the shoe. Both ways, at times this saw will practically shake the earplugs out of your head.

ERGONOMICS

Besides vibration, a few other considerations affect the comfort of using these saws. The Metabo and Panasonic saws have a spring-loaded trigger lock-switch that must be pushed in before you pull the trigger. Pushing the switch before every cut requires you to constantly move your hand from its ideal grip position, which causes grip strain and wastes time.

Another consideration is the shape of the top of the tool's trigger handle. Tools with a rounded-over profile are much friendlier to your hand and easier to grip than those with a pronounced ridge above the handgrip. When I use a recip saw for extended periods, I push on the top of the tool with my left hand; saws with a ridged-top grip handle are uncomfortable and fatiguing. The Milwaukee and both DeWalt saws provide great examples of this grip surface done right.

ADJUSTABLE SHOES

Adjustable shoes allow you to control the saw's cutting depth, which is important for plunge-cutting safely into walls, floors, ceilings, or roofs. But just as important, an adjustable shoe allows you to use all the teeth on a blade. When one section of a blade's teeth get dull, you can adjust the depth of cut and then use a previously unused section with sharp teeth.

This isn't just a matter of blade economy in dollars and cents, but truly an underused timesaver on the job. When making repetitive cuts, the same teeth are constantly being used (and dulled), but by moving the blade so that even just a few fresh teeth are put into action, cutting times and practical blade life can dramatically improve.

THE BOTTOM LINE

The overall winner is the Milwaukee Fuel model. It cut faster, ran longer, and managed vibration better than the other heavy-duty saws. It features a sturdy adjustable shoe, a quick-acting blade clamp, a useful hanging hook, and an LED headlight.

The second-place tools are the Milwaukee and 20V Max DeWalt saws—both strong and capable where it counts. The Milwaukee lacks an adjustable shoe, but the DeWalt has much more vibration, so their exact ranking is a toss-up.

Like its brandmate, the DC5385L DeWalt is a strong performer, but it misses the mark with its low runtime.

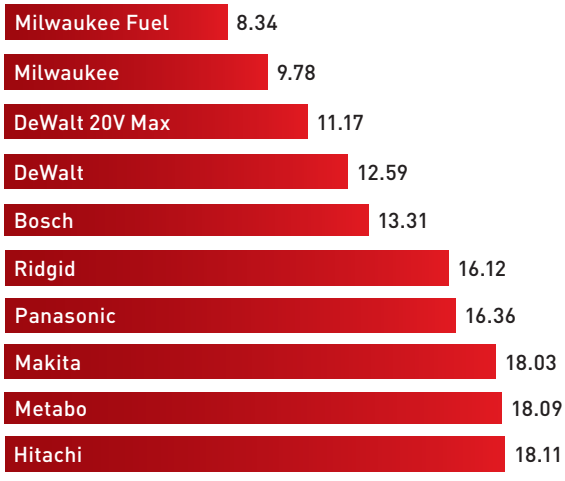
Next in order come Bosch and Hitachi—both quality saws that work diligently but more slowly than the top-tier saws. The Metabo saw follows. Low or troublesome performance issues have the Makita, Panasonic, and Ridgid trailing the others.

Michael Springer is the former executive editor of TOOLS OF THE TRADE, *which is where this article originally ran. Special thanks to Lenox for providing the blades used during testing.*

Test Results

The saws were subjected to two tests. For the power test, each saw was timed, in seconds, making a cut through nailed-embedded, doubled 2x6s. For the runtime test, the number of cuts made with a fully charged battery through nail-embedded, doubled 2x6s were counted. The top-scoring saw is listed first in each set of test results. Lower-scoring saws follow in order.

Power Test



For the sake of comparison, a large corded recip saw makes these cuts in 7.0 seconds in reciprocal action and in 6.2 seconds in orbital action.

Runtime Test