

Lewis Winch

It isn't always feasible to bring in a skidder, and a battery-powered electric winch means lugging around a 12-volt battery. There are several portable gasoline winches out there, and the selection depends on the need. This article takes a look at the **chain saw-powered** Lewis winch.



There are times when a person just needs an irresistible force to move an unmovable object. Pulling down hung trees, extracting logs from tight places, loading large logs, or retrieving stuck vehicles all make a good case for having a winch handy. Handy, of course, is the catch.

According to company owner Doug Imbeau, the Lewis winch was originally designed by Fred Lewis in 1972 as a logging tool. Lewis reasoned that a chain saw would be an ideal power source for a portable winch, since it is lightweight, powerful, and already out in the woods where it would be needed. He designed and built the

gearbox and mounted it on a frame that was lightweight yet strong enough to withstand the rough use that it would likely get. When Lewis retired, dealers and customers persuaded Imbeau to manufacture the winch in his machine shop. Still popular with loggers, the Lewis winch has also found favor with farmers, hunters, and rescue squads. The website has impressive videos of the winch pulling logs and even righting an overturned backhoe.

The unit I received for evaluation came mounted on a 675 Solo chain saw. Weight is important for portability, so the first task was to find out just how much I'd be lug-

ging through the woods. With a full tank of gas and 150 feet of 3/16-inch-diameter steel cable, the winch and saw registered 41 pounds on my bathroom scale. The unit is fairly well-balanced between a handle on the winch and the one on the saw, but not something I'd want to carry long distances into the woods. Without the chain saw, the 22-pound winch is much more portable. For exam-

Below: As a poor man's log loader, the Arbuckle arrangement for pulling logs up a ramp onto a trailer makes it relatively easy to load impressive logs without a knuckle-boom loader. In this arrangement, the cable goes over and around the log, then back to the trailer frame so that the winch rolls the log up the ramp.



ple, in those rare times when a chain saw is hopelessly wedged in a log or under a tree, it would be a simple matter to take the saw off the bar, mount the winch, free up the bar, and then (if it isn't too badly bent) put it back on the saw.

Using the Winch

There are two ways to mount the winch, depending on the type of saw. For saws with the chain sprocket under the clutch, a 4-inch stub bar with a toothless chain is provided. This mounts to the saw just like a standard bar, and the winch bolts to the saw in place of the side plate. According to Imbeau, this universal adaptor works with any chain saw. Saws with the chain sprocket outboard of the clutch can use a simpler mount that couples the winch directly to the chain sprocket. Using the direct mount, the conversion from a chain saw to winch takes slightly less time than putting on a new chain, once you get the hang of it.

The next task was to find some logs to pull. I attached the winch to

the old 8N Ford tractor and snaked about 80 feet of cable to a 24-inch-diameter oak log at the bottom of a ravine. The winch, however, mistook the log as the anchor and obligingly pulled the tractor backwards. Next try was no better, as it easily pulled the tractor wheels up and over the chocks I put behind the wheels. Repositioning the tractor for a sideways pull also proved futile, as the winch effortlessly slid the poor little tractor sideways! Giving up, I moved the tractor out of the way, spooled out another 20 feet of cable and anchored the winch to a tree. This time, the winch smoothly pulled the log at a comfortable walking speed. The winch makes it possible to move logs out of inaccessible areas without building a trail, and the path left by the log causes minimal disturbance to the soil and surrounding trees. The winch's portability makes long pulls possible by moving the winch from tree to tree.

Lacking a knuckle-boom loader, I typically load large logs on a trailer using a ramp and winch in an



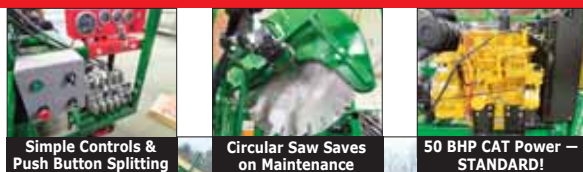
Above: Running the cable through the pulley and back to the anchor point doubles the pulling power, though it takes twice as much cable, and moves the log half as fast. The log shown is for illustration. The winch could have easily pulled it without using the pulley.

Below: The receiver hitch attachment works well on the back of a truck, or in this case, serves as a 3-point-hitch mount on a tractor. The winch slips easily onto the mount and secures with a pin. It works well as long as it is pointed straight in the direction of the pull, and as long as the anchor vehicle doesn't roll backward.



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Arbuckle arrangement. Running the cable around the log and back to the trailer frame provides the same doubling of power as the pulley, plus it rolls the log up the ramp—provided the cable goes around the log in the right direction. The Lewis winch works very well for this task. The throttle provides good speed control, and the chain saw brake holds securely whenever I stop to reposition the log on the ramp. I love it when dubious looks of bystanders turn to amazement when I use this technique! This is also a solution for getting logs onto a sawmill that lacks hydraulic lifting arms—and it could even be used for turning logs on a sawmill.

Cable Management

The biggest frustration in using the winch is in managing the cable. With the winch drive disengaged, the spool turns freely, and the cable quickly loosens and tangles. The solution is to use a bungee cord to put a little pressure on the shaft brake. With practice, I was able to find the tension that just keeps the reel from turning freely, but still allows the cable to be pulled out without too much effort. I also found that when reeling out the line, the winch has the annoying habit of flipping over and engaging the chain saw brake. Again, as I got more practice, this became less of a problem.

The first several times I used it, the cable got so fouled on the spool that I had to wind it all the way out and reel it back in straight. Much to my surprise, the first time I did this, I pulled the 150-foot cable 200 feet before I realized that the end of the cable had come off the winch! There is no solid attachment of the cable to the spool. Imbeau recommends using duct tape to hold the first dozen or so turns of cable in place.

People used to electric winches may find that the lack of any kind of reverse feed on the Lewis winch is a problem. Lowering a log with

Weight	32 lbs. with full reel of cable
Construction	Aluminum frame, steel gears
Gear reduction	100:1 gear ratio, steel spur gears
Speed	60 ft. per minute (full throttle, single line)
Cable	Aircraft grade, 3/16 in. by 150 ft. or 1/8 in. by 250 ft.

Mounting	Direct drive sprocket or stub bar (universal)
Recommended power source	3 cubic in. or larger chain saw
Maximum pulling force	8,000 lbs. with 3/16 in. cable, and one pulley
Optional	snatch block pulleys, receiver hitch mount, earth anchor, "tree saver" anchor straps, and peavey anchor hook

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Above: Single line pull with the winch gives a maximum force of 4,000 lbs. with the 3/16-in. cable and moves the load at a comfortable walking speed of roughly 6 ft. per second. Note the use of the "tree saver" nylon belt around the anchor tree.

Top right: The optional pulley slips onto the cable and secures with a pin. Attaching the pulley to an intermediate anchor point allows it to be used as a snatch block for changing the direction of pull, though the user has to manually disengage the pulley when the log reaches it.

Right: The anchor rope or chain hooks onto a U-bracket under the winch, which carries the entire force of the pull.



the winch, for example, is not a practical option. Imbeau cautions that the Lewis winch was never meant for overhead lifting. Also, the winch cannot be disengaged to allow free-spooling while the cable is in tension, and there are times when it is necessary to back off the winch to relieve the pressure to unhook it from a log. I have found that a good ratcheting tie-down between the winch and anchor is handy for releasing the tension.

Accessories

The winch came with some of the accessories to play with. The pulley is heavily constructed and well designed. The pulley frame unhinges from the roller with a pin, making it easy to slip it onto the cable. Attached to a second anchor point, the pulley makes a good snatch block. Pull the log up to the pulley and then release the pulley to change direction of the log to pull it straight to the winch. The

pulley also worked very well in doubling the winch's rated 4,000 pounds of pulling force. By attaching the pulley to the load and running the line around the pulley back to the anchor point, you have a compound pulley. With this arrangement, the cable will only reach half as far, since it doubles back to the winch. And even though the load moves half as fast, the pulling power is truly impressive. Theoretically, it would be possible to set up more pulleys, or use a block-and-tackle arrangement to further multiply the force, though I have yet to experiment with this idea.

The "tree saver" is a wide nylon strap that causes little or no damage to trees used to anchor the winch. Several can be fastened together for larger trees. They have loops on the ends that make it easy to hook them to the winch. The other option I tried was the receiver hitch mount. This attaches quickly into a standard receiver hitch and pro-

vides a stable platform for the winch. The winch slips easily onto the mount and secures with a pin. Mounted to the 3-point hitch of my tractor, it proved a versatile and easily moved anchor platform—as long as I could keep the tractor from rolling backwards. My only issue with the mount is that the vehicle must be lined up with the direction of pull. The winch can pivot a little on the mount, which makes it possible to control the cable on the spool as it reels in.

Wish List

Tools are most useful when used with other tools. The winch is an excellent means of pulling a log arch through tight places or out of ravines with minimal force and with almost no footprint left on the ground. I plan to weld a mounting bracket for the Lewis winch on my arch to replace the hand winch currently on it. There are a few other modifications on my wish list to

make the winch more logger-friendly: Attaching a log choker would make it easier to get the cable under logs on the ground and give a secure pull. I'd also get one or two self-releasing snatch blocks so that I don't have to manually release the pulley when changing the direction of the pull. Finally, I'd put a ferrule on the end of the cable to keep it on the winch.

Overall, the Lewis winch is a well-engineered machine. A little on the heavy side, but solidly built and definitely up to the task of moving logs, bringing down hung-up trees, and pulling equipment. Although the winch was sent to me for evaluation, I wound up buying it instead of sending it back. ■

Dave Boyt has a BS degree in Forest Management and an MS in Wood Technology. He manages a tree farm (2006 Missouri Tree Farm of the Year), and operates a band saw sawmill.

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