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WINCHING DOWN LODGED TREES WITH A HELPER WINCH

[In February 1990, FERIC's Woodlot Technology group tested the Helper winch at Larose Forest, near Bourget, Ont. This Field Note provides information on the results of the testing.]

INTRODUCTION

The Helper winch, made by Rule Industries of Burlington, Massachusetts, U.S.A., is a small, lightweight, portable winch powered by a Homelite XL (26 cc) chain saw engine. The frame of the Helper winch is of aluminum. It weighs 14.9 kg, including the engine and 23 m of 4.8-mm aircraft cable, and provides 900 kg of line pull. The winching speed, with no load, is 10.7 m/min. Overall gear reduction is 275:1. The winch has a patented auto-lock mechanism (no brake necessary) and a cable tension release mechanism. The Helper winch has been available for about three years in the U.S.A, with about 4000 units sold to date. It is mainly used for forestry purposes, by hunters to move big game, and by off-road vehicle enthusiasts.

The list price is $1000; a discount is available to rental shops. Included with the winch is a 2-m tie-down cable (with snap fasteners on each end) to permit the winch to be attached to trees or other stationary objects.

FERIC's main interest in the Helper winch was for dislodging hung up trees. Chain saw felling operations in dense stands often result in lodged trees. If there is no skidder, farm tractor or similar unit to pull them down, these trees will result in reduced production and present a safety hazard for the chain saw operator.

FERIC's study was carried out while thinning a 40-year old red pine stand at Larose Forest, near Bourget, Ont. About one half of the trees had been marked for removal. FERIC staff used the Helper winch on about 30 trees.

GENERAL OBSERVATIONS

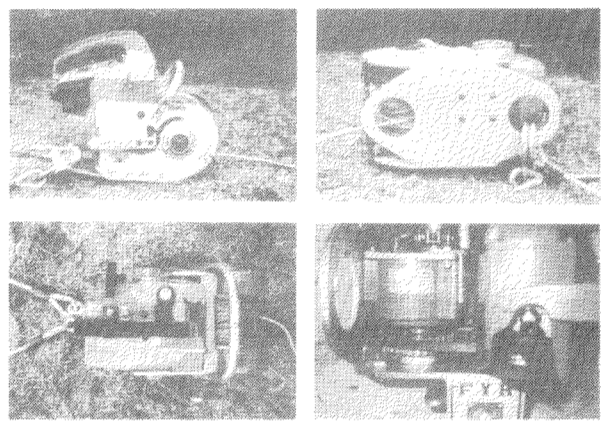
The Helper winch was easy to use. First, the 2-m tie-down cable was placed around an anchor tree and both ends were snapped into a hole on the base of the winch. The cable was then pulled out (the winch freewheels easily) and hooked around the tree to be winched. Then, the winch was activated.

A snatch block was used at all times, not to increase the line pull, but to permit changes in the direction of winching. Without a snatch block, it would have been difficult to winch down trees in the right direction, since there were usually other trees or stumps in the way.

Bare-drum line pull was measured at 1000 kg, which exceeded the manufacturer's claim (900 kg). When the load exceeded 1000 kg, the clutch would slip. If full throttle was maintained, the engine would stall out. NOTE: Increased line pull to a maximum of 3600 kg is possible using snatch blocks with multiple lines.

Other possible uses of the winch include:

- to winch logs (e.g. fuelwood) over short distances (e.g. 10-15 m);
- to re-orient the direction of fall when felling trees leaning in the wrong direction;
- to pull a stuck ATV, snowmobile or 1/2-ton truck from mud or snow. NOTE: the use of a snatch block with multiple lines (increase line pull) may be necessary for a 1/2-ton truck.
- to load a farm trailer or portable sawmill deck using inclined ramps. FERIC tested this use, and found it slow, but effective. The cable was attached to the centre of the logs in between the two ramps.



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OTHER COMMENTS

- The Helper winch does not have adequate control for overhead loading of logs because it has no lowering function. It can raise the load, but the log will freefall if the clutch is released. NOTE: The winch has an auto-lock that can hold the load even if the engine is shut off. The load can be *easily* released while under tension by moving the clutch lever.
- The Dayton gear reducer on the winch is rated for 1/10-hp power input. While this unit proved adequate for intermittent pulling duty, it may pose a safety problem if lifting a heavy load (if a gear failure occurred). For this reason, the winch is *not* recommended for vertical lifting.
- The operator tended to scrape his fingers when operating the clutch and winch levers. The levers are located directly above each other and are too close to the winch frame. This lack of space prevented the operator from wearing gloves when operating these levers.
- The muffler on the Homelite XL engine is located near the clutch and winch levers, creating a risk for the operator to burn his wrist. Better shrouding of the muffler is required.
- The Homelite XL (26 cc) is an inexpensive engine that has enough power for the job. However, it lacks somewhat in quality and design features. For example, the throttle linkage inside the Homelite's handle came off once; to repair it, the handle had to be taken apart. Also, the off/on toggle switch on the engine is poorly located. It is too easy to switch off the engine inadvertently. NOTE: The manufacturer has installed the Homelite XL 31-cc engine on winches built since July 1990, thereby introducing some improvements.
- The use of a heavy-duty nylon strap, instead of a cable, to secure the winch and/or snatch block will reduce the risk of injuring the tree(s).
- Several snatch blocks were used by FERIC. To avoid having the cable jump out of the grooved pulley, only a pulley recommended for 4.8-mm cable should be used.
- According to the manufacturer, the cable on the winch will rarely break if maintained in good condition. However, a remote throttle cable (1.6 or 3.2 m in length) is available to reduce the safety risk should a cable fail. The use of a snatch block also reduces the risk. A blanket can also be placed on the midpoint of the extended cable; this absorbs the lashing effect and directs it into the ground.

SUMMARY

Overall, while not of major practical use for full-scale logging operations, the Helper winch has great potential for woodlot applications and as a general winching tool. It performed very well for winching down lodged trees during FERIC's tests. The 900-kg rated line pull will limit its use to trees of about 30 cm dbh. For larger trees, or where more line pull is required, a snatch block with multiple lines can be used; however, the added set-up time may cancel the advantage gained.

The Helper winch can be compared to other chain saw winches (e.g. Lewis, KBF) which have been available for a number of years. The Helper winch's main advantage is that it is shipped with a chain saw engine and is ready to use when the customer buys it. With the other units, the buyer must search for a suitable engine and attach it. Other advantages of the Helper winch are that it is lower in weight, smaller in size (fits into a truck toolbox), and is less costly (if the cost of the engine is considered). However, these competitive units may provide more rated line pull than the Helper winch.

In comparison to electric winches (e.g. Superwinch, Warn, Rule), the main advantages of the Helper winch are that it is more portable and can operate on a more continuous basis (a tank of gas provides 20 minutes of operation). The Helper winch can thus be used without concern about draining an electrical battery. However, some electric winches have a "power out" feature that permits a raised load to be lowered gradually. The manufacturer hopes to introduce this feature to Helper winches at a later date.

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FURTHER INFORMATION

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