

HEADQUARTERS MECHANICAL DEVELOPMENT COMMITTEE

Report No. 50 on

The Danarm Falcon Winch

Origin

The first stage in the extraction of timber from the stump calls for the handling of each log individually and where size prevents this being done by hand, machinery or horses must be called in to help. Ground conditions very often prevent the use of a horse and even where they would allow a horse to work horses are often not available. Machinery is therefore, being called upon to play an increasing part in this role and already new specialised machines are becoming available. The Danarm Falcon Winch is an example of this trend and the field trial of one of these machines is covered by this report.

Description

The winch is built in light alloy and is designed to fit onto the Danarm Fury power saw engine and gearbox unit in place of the chain saw and blade.

The Specification Includes:-

Total weight	77 lbs.
Range (rope length)	110 feet
Rope size	$\frac{1}{4}$ ins. diam.
Engine	98 c.c. two stroke
Clutch	Centrifugal
Price	£151. 0. 0
Including engine, gear unit and winch.	

Chain and guide plate for conversion to power saw cost a further
£12. 16. 9.

The winch is anchored by a hook at the base of the winch casting so positioned that the operator has sufficient leverage on the rear handle of the winch to control the winding of the rope on the drum.

The makers are:- J. Clubley Armstrong Danarm Ltd., Abford House,
Wilton Road, London, S.W.1.

Observations

1. The operating team is two men, one as winch operator and the second to pull out the rope and help to guide the load during winching.
2. The maximum steady pull recorded during the trial was 1,500 lbs. (The actual pull varies with engine speed according to the engine torque curve).

Observations

3. The centrifugal clutch was found to be very effective in allowing the pull to be gradually taken up. If the load strikes an obstruction such as a stump, the clutch prevents the engine being stalled. The clutch can be slipped whilst the load is being freed by the second man and all the winch operator has to do is to open the throttle as soon as he sees that the load is free.

In spite of frequent slipping no trouble was experienced with the centrifugal clutch during the trial which included six hours operating time.

4. Anchoring the winch presented some difficulties in the early stages of the trial. With the winch anchored by chain to a standing tree the operator has difficulty in controlling the winding of the rope onto the drum where pulls exceed 1,000 lbs. The makers have produced a ground anchor using six pins which gave a better anchorage and allowed the maximum pull to be used with reasonably good winding.

The ground anchor can be set up in a few minutes.

The winch is seen in operation in the photograph attached to this report.

5. The maximum size of log that can be pulled varies with the ground conditions but on a reasonably firm forest floor there is no difficulty in hauling a 10 cu ft. log. The load can, of course, be doubled by hauling through a pulley block but, in this case, the range is halved.

6. Maximum winching speed with a light load is 100 ft. per minute.

7. The time required by one man to change the Danarm unit from saw to winch is 6 minutes 2 seconds, and the time to convert it back again is 7 minutes 8 seconds. A screwdriver and 9/16" spanner are the only tools required.

Conclusions

Owing to its light weight the Danarm Falcon Winch is very useful for operating in inaccessible places. The low first cost and the speed with which it can be brought into operation make it particularly suitable for assembling logs into a position where they can be picked up by conventional transport.

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R. G. SHAW
Machinery Research Officer
March 1956



The Danarm Falcon winch in action. Note the ground anchor which forms a V on the ground. One leg of the anchor can be seen with two pins in use. The operator is able to control the winding of the cable on the drum by using the rear handle as a lever.