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FORESTRY COMMISSION
(ENGLAND)

HEADQUARTERS MECHANICAL DEVELOPMENT COMMITTEE

REPORT No. 52

THE DANARM FURY POWER SAW

Origin H.Q.M.D.C. Report No.50 covered the trial of the Danarm Falcon Winch. It was explained that the Falcon Winch and the Danarm Fury power saw used the same engine and gearbox unit. This report covers the trial of the unit when used as the Danarm Fury saw.

<u>Description</u>	Weight, full petrol and oil (23 in. saw)	=	39½ lbs
	Engine	=	98 C.C. 2 stroke
	Clutch	=	Centrifugal
	Chain type	=	Chipper or Butterfly
	Starter	=	Automatic rewind
	Chain lubrication	=	By mechanical pump
	Price	=	£89. 0. 0.

A photograph of the saw is attached to this report.

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

Observations 1. Felling A trial was carried out on flat ground at Alice Holt felling European larch. The output rate of the Fury saw operated by one man was recorded in comparison with that of a 6 ft. cross cut and a 3 ft. Bushman saw both operated by two men. The operation was selective thinning so the saws had to be carried some distance from tree to tree.

The time taken to cut through each tree of a variety of sizes with each type of saw was recorded and the results are shown in graphical form in the appendix attached to this report. Several trees of each size were felled and the average time recorded. Reference to the appendix shows the following interesting points:-

- (a) On trees with butt diameter up to 6½ inches the Bushman saw cuts more rapidly than either of the others.

- (b) On butt diameters over $6\frac{1}{2}$ inches the Danarm Fury saw gave the fastest cut with the saving in time growing greater as the size of the trees increased.
- (c) The Bushman easily beat the cross cut up to a butt diameter of $9\frac{1}{2}$ inches but on trees above this diameter the efficiency of the Bushman fell away badly.

2. Cross Cutting When used for cross cutting, particularly on hardwoods, the Danarm Fury saw was shown to be very much faster than the cross cut. The following timed results were recorded.

				<u>Cross Cut</u>	<u>Danarm Fury</u>
				(2 men)	(1 man)
Chestnut	$13\frac{1}{2}$	ins.	diam.	-	25 secs.
"	14	"	"	36 secs.	-
"	$14\frac{1}{2}$	"	"	-	28 "
"	15	"	"	49 "	28 "
"	$15\frac{1}{2}$	"	"	44 "	-
"	16	"	"	-	36 "
"	$16\frac{1}{2}$	"	"	64	-
"	$17\frac{1}{2}$	"	"	-	47 "
"	$19\frac{1}{2}$	"	"	111 "	-
Yew	11	"	"	30 "	19 "

Note The Danarm Fury cutting speed on the above tests was
5 - 6 sq. in. per second. (32 - 37 sq. cm. per second)

3. All the times recorded for felling and cross cutting in Observations 1 and 2 were actual cutting times only. Time absorbed in moving from one position to another was not included.
4. Each of the felling trials covered continuous working for a period of 30 minutes. The operators on all the saws showed minor signs of exhaustion after 30 minutes working at this degree of intensity. The figures are a good guide to the relative cutting speeds of the three saws but it must be appreciated that the rate of output over a full days work would be substantially lower in every case.

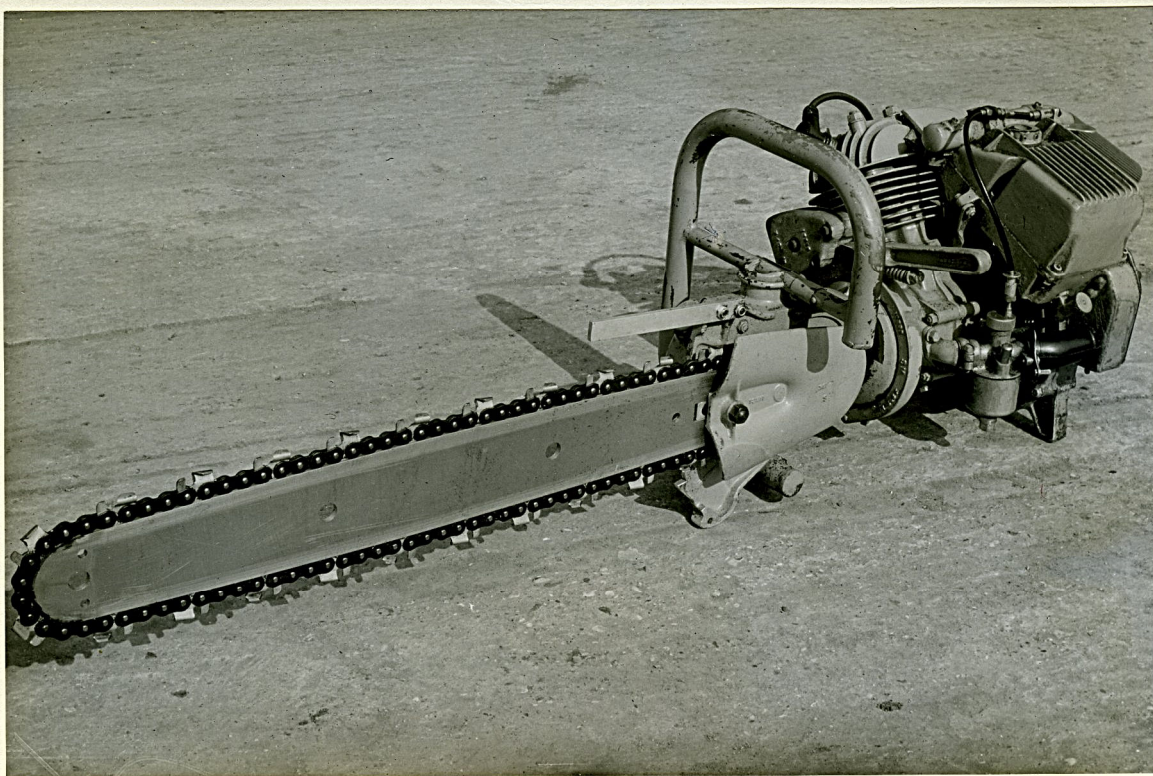
4. The $39\frac{1}{2}$ lbs weight of the Danarm Fury was not a serious handicap on the flat ground on which this trial was conducted. Although there was ^{no} means of actual measurement, the effort of carrying the saw appeared to be off-set by the saving in effort when cutting. When felling on rough or hilly country, however, the advantage of this power saw would not be felt until trees reached a greater diameter than the $6\frac{1}{2}$ inches which was the point at which this trial showed it to gain the advantage.
5. The height of the stump left after felling with the Danarm Fury was $3\frac{1}{2}$ inches.
6. Fuel consumption was 1 pint of petrol/oil mixture per hour.
7. The only defect experienced with the saw was an interruption in the oil flow from the pump to the chain due to dirt blocking the oilway.
8. Operating Costs The operating cost per hour varies very widely with the amount of usage that machinery of this kind receives. Based on an annual usage of 500 hours the operating cost of the Danarm Fury saw works out at 1/10d per hour. This is calculated as follows:-

Depreciation (12% per year of 500 hours)	= 5d per hour
Fuel and oil	= 8d " "
Repairs and servicing	= 9d " "
	= 1/10d "

Conclusions

The results of this trial showed that

- (a) Two men with a Bushman saw could fell faster than one man with the Danarm Fury on trees up to $6\frac{1}{2}$ inches butt diameter.
- (b) Above $6\frac{1}{2}$ inches diameter the Danarm Fury had the advantage and at 10 inches diameter was felling at twice the speed of the bushman.
- (c) The 6 ft. cross cut was less efficient for felling than the bushman saw until diameters reached $9\frac{1}{2}$ inches.
- (d) For cross cutting hardwoods the Danarm Fury was far quicker than the cross cut on all sizes.



The Danarm Fury one man power saw with chipper chain.

