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To Directors, Conservators
and Deputy Surveyors

Mechanical Development Report No. 40
The Jo Bu Junior Saw

The Jo Bu Junior Saw is now accepted as the standard one-man power saw for use on thinnings in the Forestry Commission. A more powerful saw is needed for mature timber and for hardwoods and larger saws are on trial. Attention is drawn to the need to organise a system when felling to make the maximum use of power saws i.e. one man with a power saw must be supported by three or more men trimming as local conditions require.

Mr M. C. Richardson 13/12

Mr Mackenzie 13/12/55

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H.B.P.

Deputy Director General
7.12.55

P.A

Headquarters Mechanical Development Committee
Report No. 40 on
The Jo Bu Junior Power Saw

Origin

Experiments with one man power saws have been taking place over a considerable time. The earlier saws weighing around 40 lbs. and, sometimes, more, were never able to achieve any sustained popularity because the physical effort which they saved in cutting was cancelled by the effort of handling them. This applied particularly to operating on steep slopes where a secure foothold for the man was not always obtainable. The Jo Bu junior was the first saw within the weight limits of easy handling to become available in the United Kingdom and several have now been in use for a considerable time.

Description

The Jo Bu junior one man power saw is a Norwegian design which, as sold in the United Kingdom, uses certain British components such as an Amal carburettor, Wico-Pacey Magneto and sparking plug.

The engine is a 76C.C. two stroke with an aluminium cylinder and chromium plated liner. Transmission to the cutter chain is through a reduction gear and hand operated cork clutch in an oil bath. The petrol tank and carburettor swivel on a gland on the induction manifold to allow the chain to operate, in either the horizontal or vertical plane for felling or cross cutting. The throttle is thumb operated. Either butterfly or chipper chains are available. The chain is lubricated by a drip feed when the clutch is engaged. Total weight with fuel and oil tanks full = 24½ lbs.

The price is £65 (retail) + 30/- for the wooden case.

Photographs 1-4 attached to this report show the saw being used for cross cutting and felling.

Observations

1. Timed tests over three hour periods using the Jo Bu saw in comparison with hand saws gave the following results:-

(a) Felling Douglas Fir with butt diameters of 10" - 14". Average felling rates per hour were

One man with the Jo Bu saw felled at a rate of 30 trees per hour.

Two men with a hand saw felled at a rate of 16 trees per hour.

These figures exclude putting in the "sink" which had been done in advance.

(b) Cross cutting Douglas Fir 6 - 12 inches diameter.

One man with the Jo Bu saw cut at a rate of 55 cuts per hour.

Two men with a hand saw cut at a rate of 35 cuts per hour.

These rates were maintained for periods of three hours and included the time taken to move from one point to another.

The time required for actually cross cutting with the Jo Bu saw on 10 inch diameter logs was 20 seconds per cut (averaged over a number of cuts).

2. The opinion of a large number of operators on this saw has been very favourable. The balance is good and this, combined with the light weight, allows long periods to be worked without physical exhaustion.

3. Twenty two of these saws are now in use in the Forestry Commission and they have maintained a high standard of reliability. There have been a number of cases of broken chains but these occur with all power saws though they can be greatly reduced by skilful handling.

4. The automatic rewind starter has proved most effective and reliable.

5. Points of criticism have been:-

- (a) Excessive consumption of the mixture of oil and diesel fuel fed to the chain. Constant refilling of the tank is necessary.
- (b) The absence of a centrifugal clutch. Opinion on this point is not unanimous. A very good hand operated clutch is provided but operators who are not regularly handling the saw frequently stall the engine through overloading.

Conclusions

The Jo Bu Junior power saw has proved to be very suitable for both cross cutting and felling trees of 10 inches diameter or more largely owing to the light weight and high standard of mechanical reliability.

R. G. SHAW

Machinery Research Officer

June, 1955.

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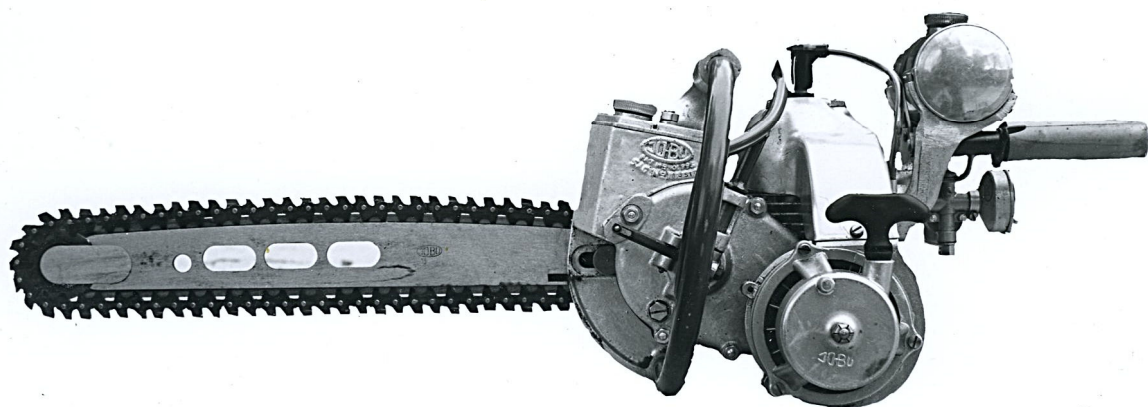
PHOTOGRAPH 1. - Cross cutting with the JO-BU junior saw.



PHOTOGRAPH 2. - Felling in a Douglas Fir plantation.



PHOTOGRAPH 3. - Felling (note the low stump).



PHOTOGRAPH 4. - Side view of the JO-BU junior saw.