INTERNATIONAL STANDARD

ISO 6535

Second edition
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Portable chain-saws — Chain brake performance

Scies à chaîne portatives — Performances du frein de chaîne

Reference number
ISO 6535:1991(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 6535 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Sub-Committee SC 17, *Manually portable forest machinery*.

This second edition cancels and replaces the first edition (ISO 6535:1983), to which a new clause on recommended performance times has been added.

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Portable chain-saws — Chain brake performance

1 Scope

This International Standard specifies methods for measuring the braking time and release force of manually-operated chain brakes on portable hand-held chain-saws and gives performance recommendations.

2 Performance requirement and recommendations

Measurements shall be carried out on three different normal production saws of the same model with specified guide bar and chain.

The maximum braking time should not exceed 0,15 s and the average braking time, measured on one saw, should not exceed 0,12 s when the chain brake is tested in accordance with 6.1.

The release force should be more than 20 N and less than 60 N when the chain brake is tested in accordance with 6.2.

3 Apparatus

3.1 Rotational speed indicator, with a rotating speed reading accuracy of ± 2,5 %.

3.2 Time recording device, including pick-ups, having an accuracy of ± 5 ms.

3.3 Pick-up device, for registering the brake arm activation.

3.4 Pick-up device, for registering the chain motion.

3.5 Force gauge, having an accuracy of ± 1 N.

3.6 Pendulum, having a head with a flat strike face of 50 mm diameter and an arm with a length giving 700 mm distance between the swivel point and the centre of the head. The arm shall be as light as possible. The pendulum shall cause an impact force of 1,4 J from a drop height of 200 mm.

4 Test chain-saw

The engine shall have been run in before the test and the carburettor and ignition adjusted according to the manufacturer's instructions.

Softwood shall be used for cutting.

5 Preparation

The chain-saw and chain tension shall be adjusted for best cutting performance in accordance with the manufacturer's recommendations. The chain tension shall generally be adjusted so that, when a 1 kg mass is hanging from the centre of the usable cutting length along the lower portion of the chain, the gap between the chain side link and the bar is a minimum of 0,017 mm per millimetre of bar length.

If applicable, the chain oil pump shall be adjusted to maximum setting according to the manufacturer's recommendation. The type of chain lubrication oil used shall be noted in the test report.

The saw shall be rigidly mounted by the handles during the test.

The brake friction surfaces shall be dry and unlubricated prior to the preliminary running required by 6.1.3.

The ambient temperature shall be 20 °C ± 5 °C.

6 Procedure

6.1 Braking time

6.1.1 Principle

The brake is released with a blow from the pendulum. The pendulum strikes the front hand-guard from a drop height of 0,2 m.

The braking time is defined as the interval from the instant the pendulum hits the guard to the instant the saw chain ceases to move. In order to avoid incorrect measurements due to vibration of the chain or the sprocket, it is considered that the chain has ceased to move when the time it takes for two successive chain teeth to pass the measuring point exceeds 10 ms.

6.1.2 General

Keep the throttle in a fixed position during the braking. This position shall correspond to the manufacturer's rated speed for maximum power plus 33 % or full throttle (racing speed), whichever is less. When the chain has stopped after braking, the throttle shall be adjusted to idling, and the brake reset.

No brake adjustment of any kind and no cleaning shall be carried out during the test. No readings shall be excluded.

Carry out the measurements according to the following procedure.

6.1.3 Preliminary running

Warm up the engine at speeds between maximum power speed and racing speed.

Run the engine between maximum power speed and racing speed and stop the chain with the brake 300 times. The time interval between two subsequent stoppings shall be long enough to avoid excessive overheating.

Cut softwood for the time it takes to use one tankful of fuel at approximately maximum power speed.

6.1.4 First test

6.1.4.1 Run the engine at racing speed.

6.1.4.2 Brake the chain to a stop five times at 30 s intervals and record the braking times.

6.1.5 Second test

6.1.5.1 Run the engine at racing speed.

6.1.5.2 Carry out 15 blind brakes at 30 s intervals.

6.1.5.3 Immediately carry out five brakes at 30 s intervals and record the braking times.

6.2 Release force (static test)

Measure the force on the front hand-guard needed to activate the brake in the direction of 45° forward and downward in relation to the guide bar centreline at the centre of the top (horizontal) part of the front hand-guard (see figure 1).

The engine shall not be run during this test. The force shall be applied at a uniform rate.

7 Report

7.1 Braking time

Report all recorded braking times and the average value of 6.1.4.2 and 6.1.5.3.

7.2 Release force

Report the release force in newtons.

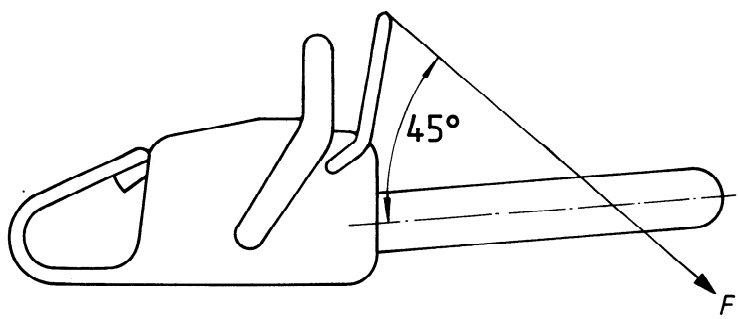

Figure 1 — Static test for release force

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Descriptors: forest equipment, portable equipment, saws, operating time, break capacity, specifications, measurement.

Price based on 2 pages