INTERNATIONAL STANDARD

ISO 789-1

Second edition
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Agricultural tractors — Test procedures —

Part 1:
Power tests for power take-off

Tracteurs agricoles — Méthodes d'essai —
Partie 1: Essais de puissance à la prise de force

Reference number
ISO 789-1 : 1990 (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 789-1 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*.

This second edition cancels and replaces the first edition (ISO 789-1:1981): power tests for the tractor drawbar have now been transferred to ISO 789-9.

ISO 789 consists of the following parts, under the general title *Agricultural tractors — Test procedures*:

- *Part 1: Power tests for power take-off*
- *Part 2: Hydraulic power and lifting capacity*
- *Part 3: Turning and clearance diameters*
- *Part 4: Measurement of exhaust smoke*
- *Part 5: Partial power PTO — Non-mechanically transmitted power*
- *Part 6: Centre of gravity*
- *Part 7: Axle power determination*
- *Part 8: Engine air cleaner*
- *Part 9: Power tests for drawbar*

Annex A forms an integral part of this part of ISO 789. Annexes B to E are for information only.

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Agricultural tractors — Test procedures —

Part 1: Power tests for power take-off

1 Scope

This part of ISO 789 specifies test procedures for determining the power available at the power take-off (PTO), and at the belt or pulley shaft, on agricultural tractors of the wheeled, track-laying or semi-track-laying type.

The statement of the power rating of the PTO is specified in 6.3.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 789. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 789 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 500 : 1979, *Agricultural tractors — Power take-off and drawbar — Specification.*

3 Definitions

For the purposes of this part of ISO 789, the following definitions apply.

3.1 rated engine speed: Engine speed specified by the tractor manufacturer for continuous operation at full load.

3.2 power take-off power: Power measured at the dynamometer coupled to any shaft (with the tractor stationary) designed by the tractor manufacturer to be used as a power take-off.

NOTE — Where more than one PTO shaft is incorporated, the particulars are identified (see 6.3).

3.3 belt power: Power measured at the belt dynamometer.

3.4 specific fuel consumption: Mass of fuel consumed per unit of work.

4 Measurement units and permissible tolerances

The following are used in this part of ISO 789:

— rotational frequency, in revolutions per minute	± 0,5 %
— time, in seconds	± 0,2 s
— distance, in metres or millimetres	± 0,5 %
— force, in newtons	± 1 %
— torque, in newton metres	± 1 %
— mass, in kilograms	± 0,5 %
— fuel consumption, in kilograms per kilowatt hour	± 1 %
— atmospheric pressure, in kilopascals	± 0,2 kPa
— temperature of fuels, etc., in degrees Celsius	± 2 °C
— wet and dry bulb thermometer temperatures, in degrees Celsius	± 0,5 °C

5 General requirements

5.1 Specification

The tractor tested shall conform to the specification in the test report (see annex A) and shall be used in accordance with the manufacturer's recommendations for normal operation.

5.2 Running-in and preliminary adjustments

The tractor shall be run-in prior to the test. For spark-ignition engines fitted with a means for the operator to vary the ratio of the fuel/air mixture, the tests shall be carried out with the settings recommended for normal operation. The adjustment of the carburettor or the injection pump shall conform to the manufacturer's specifications. Run-in shall be done with the governor set at full throttle and with the engine operating at rated speed.

5.3 Fuels and lubricants

The compression-ignition (diesel) fuel used for the test shall be CEC reference fuel CEC RF-03-A-84. For spark-ignition engines,