ASABE/ISO 12140-1:2020 JUN2024
Agricultural trailers and trailed equipment — Drawbar jacks — Part 1: Design safety, test methods and acceptance criteria

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History of ASAE S485: Developed by the ASAE Implement Jacks Committee; approved by the Power and Machinery Standards Division Committee; adopted by ASAE October 2001; reaffirmed February 2006; revised April 2007, revised November 2010; revised April 2011.

ASAE S485 was used as the basis document for ISO 12140:2013. Agricultural machinery — Agricultural trailers and trailed equipment — Drawbar jacks. ASAE S485 replaced by an identical adoption of ISO 12140:2013 and approved as an American National Standard June 2014; reaffirmed December 2018; replaced by an identical adoption of ISO 12140-1:2020 June 2024.

Keywords: Implement, Jack, Safety, Trailer

0 Foreword

0.1 ASABE/ISO 12140-1:2020 JUN2024, Agricultural trailers and trailed equipment — Drawbar jacks — Part 1: Design safety, test methods and acceptance criteria, is an adoption without modification of the identically titled ISO 12140-1:2020, Agricultural trailers and trailed equipment — Drawbar jacks — Part 1: Design safety, test methods and acceptance criteria.

0.2 ASABE/ISO 12140-1:2020 JUN2024 specifies criteria for construction, establishes performance test methods and defines acceptance criteria for telescopic mechanical screw- and nut-type drawbar jacks and hydraulic drawbar jacks intended to be fitted on the implement tongue of interchangeable towed machinery [here after referred to as "implement(s)"] as original equipment or as replacement jacks. In addition, it specifies minimum markings and information for use to be provided by the jack manufacturer.

These jacks are used specifically for

— supporting the hitch points of implements during storage;

— lifting and lowering of implement tongues to facilitate attaching to or disconnecting from an agricultural tractor; and

— levelling an implement for stationary use.

0.3 One normative reference is listed in ISO 12140-1:2020. This reference has been reviewed and accepted as part of the adoption of the ISO 12140-1:2020 in ASABE/ISO 12140-1:2020.

0.4 This standard has been approved as an American National standard by ANSI (American National Standard Institute). The original content of ISO 12140 was based on ASAE S485.3, Implement Mounted, Screw-Type Jacks.

Text of ISO 12140-1:2020, Agricultural trailers and trailed equipment — Drawbar jacks — Part 1: Design safety, test methods and acceptance criteria, follows.

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Agricultural trailers and trailed equipment — Drawbar jacks — Part 1: Design safety, test methods and acceptance criteria

1 Scope

This document specifies criteria for construction, establishes performance test methods and defines acceptance criteria for telescopic mechanical screw- and nut-type drawbar jacks and hydraulic drawbar jacks intended to be fitted on the implement tongue of interchangeable towed machinery [here after referred to as "implement(s)"] as original equipment or as replacement jacks. In addition, it specifies minimum markings and information for use to be provided by the jack manufacturer.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9227, Corrosion tests in artificial atmospheres — Salt spray tests

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https:// www .iso .org/ obp

— IEC Electropedia: available at http:// www .electropedia .org/

3.1 jack
hand or power-operated telescopic mechanism with a ground contact pad (base) or wheel and fixing point [jack mount (3.11) or mounting point] designed for controlled vertical movement

NOTE 1 to entry: A hand-operated jack typically uses mechanical means to control vertical movement. A powered operated jack typically uses hydraulic fluid displacement to control vertical movement.

3.2 static compressive load
vertical force used to support the intended application under static conditions

3.3 dynamic compressive load
vertical force used to lift the intended application measured during actuation of the jack

3.4 static tensile load
force opposite of static compressive load (3.2) resulting in a tension load applied to the jack (3.1)

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3.5 dynamic tensile load
force opposite of dynamic compressive load (3.3) resulting in a tension load applied to the jack (3.1)

3.6 side load
< fore-aft > force applied in a plane perpendicular to the longitudinal axis of the jack (3.1) in a direction generally aligning with the towing direction of the implement

3.7 side load
< lateral > force applied in a plane perpendicular to the longitudinal axis of the jack (3.1) at right angles to the general towing direction of the implement

3.8 screw and nut
threaded shaft and nut that transforms rotational motion of the crank assembly (3.13) into linear motion of the jack (3.1)

3.9 outer tube
tube with the largest cross-sectional dimension

3.10 inner tube
free-moving and generally smaller tube moving within the outer tube (3.9)

3.11 jack mount
portion of the outer tube (3.9) that mates with the implement mount

3.12 swivel mount
mounting method that allows the jack (3.1) to be rotated to a storage position without removing the jack from the implement

3.13 crank assembly
device used to actuate the screw (3.8) to extend or retract the jack (3.1)

3.14 base
contact pad
bottom load bearing portion of the inner tube (3.10) or drop leg, if provided, that transmits force to the ground or floor

3.15 jack cycle
extension of the jack through 65% of the jack travel and retraction back to its original length

NOTE 1 to entry: If a particular jack has added travel for the purpose of greater unloaded range, the jack cycle can be based on 65% of the normal travel.

3.16 extended length
maximum attainable dimension from the centre of the jack mount (3.11) to the bottom of the base (3.14) of the jack (3.1)

3.17 basic rated life
L_{10}
90% of the reliable life of samples tested that pass a given requirement

3.18 rated static compressive load capacity
static compressive load (3.2) that the jack (3.1) is rated to support or sustain while meeting the requirements of this document

3.19 rated dynamic compressive load capacity
dynamic compressive load (3.3) that the jack (3.1) is rated to repeatedly lift while meeting the requirements of this document

3.20 rated static tensile load capacity
static tensile load (3.4) that the jack (3.1) is rated to sustain while meeting the requirements of this document

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