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Rough-terrain trucks — Safe use requirements —

Part 2: Slewing variable-reach trucks

Chariots tout-terrain — Exigences pour l'utilisation en toute sécurité —

Partie 2: Chariots rotatifs à portée variable

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 110 *Industrial trucks*, Subcommittee SC 4, *Rough-terrain trucks*.

This second edition cancels and replaces the first edition (ISO 11525-2:2015) which has been technically revised.

The main changes compared to the previous edition are as follows:

— requirements related to training have been moved to ISO 23676[1)];

— operator qualifications and requirements for an operator to be trained have been merged;

— requirements related to refuelling have been added.

A list of all parts in the ISO 11525 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

1) Under preparation. (Stage at the time of publication: ISO/DIS 23676:2019.)

Introduction

Slewing variable-reach trucks (as defined in ISO 10896-2) are known by a variety of terms including “rotating telehandlers” and “multi-purpose rotating handlers”.

For unique applications, these trucks can be equipped with a variety of attachments (for example, jibs, winches, jibs with a winch and clamp, mowers and sweepers).

Users need to take into consideration that certain features and characteristics of these trucks are unique and require specific methods for use and training of operators. In addition to general user requirements, these specific methods are also covered in this document.

Rough-terrain trucks — Safe use requirements —

Part 2: Slewing variable-reach trucks

1 Scope

This document specifies requirements for application, inspection, training, maintenance, repair and safe operation (herein referred to as safe use) of slewing variable-reach rough-terrain trucks (herein referred to as trucks), as defined in ISO 10896-2.

It is intended to achieve the following:

— the prevention of personal injuries, property damage and accidents;

— the establishment of criteria for inspection, maintenance and operation;

— the establishment of operator training requirements.

The safe use requirements for non-slewing trucks, the interface between rough-terrain trucks and integrated personnel work platforms that can be fitted to rough-terrain trucks and the handling of freely suspended loads with rough-terrain trucks are covered by the other parts of the ISO 11525 series.

The safe use requirements for non-integrated personnel work platforms are covered in ISO 18479-2.

This document is not applicable to lorry-mounted trucks.

This document is not applicable to mobile cranes.

NOTE National or local requirements can apply.

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 edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5057, *Industrial trucks — Inspection and repair of fork arms in service on fork-lift trucks*

ISO 10896-2, *Rough-terrain trucks — Safety requirements and verification — Part 2: Slewing trucks*

ISO 11525-1, *Rough-terrain trucks — Safe use requirements — Part 1: Variable-reach trucks*

ISO 23676, *Rough-terrain trucks — Operator training — Content and methods (under development)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10896-2, ISO 11525-1and the following 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
normal access/egress configuration
configuration of the truck on tyres, with its slewing structure in the forward aligned position, with stabilizing devices in transport position and with the boom lowered and fully retracted

4 General requirements

4.1 Principles

4.1.1 This document shall be supplemented by good management practices, safety controls and application of sound principles of safety, training, inspection, maintenance, application selection and operation. All data available regarding the parameters of intended use and expected environment shall be considered. Those with direct control over the application and operation of the truck shall be responsible for ensuring good safety practices.

NOTE Different operating conditions can require additional safety precautions, training and special safe operating procedures.

4.1.2 The operation of any truck is subject to certain hazards that can be protected against only by the exercise of care and common sense. It is essential to have competent persons trained in the intended use, safe operation, maintenance and service of the truck and any attachment(s).

4.1.3 The user shall ensure that the operator understands that safe operation of the truck is also the operator's responsibility.

4.1.4 The user shall take reasonable measures to ensure that the operator's mental or physical condition does not impair their ability to operate the truck.

4.1.5 In addition to specific training, application selection and operation of the truck, the user shall take the following characteristics for trucks that slew into consideration:

— these trucks are primarily designed for handling supported loads on forks;

— the slewing movement of the upper structure can reduce the need for frequent repositioning of the truck;

— other attachments can be fitted.

4.1.6 The user shall take reasonable measures to ensure that the safe use requirements are being applied during operation.

4.2 Operator's manual(s)

4.2.1 The user shall ensure that the operator's manual(s) and any additional safety manual(s) provided by the manufacturer with the truck are always available to the operator and maintenance personnel.

4.2.2 The user, the operator, or both shall refer to the responsible entity if doubt arises on either the use of the truck or the interpretation of the operator's manual.

4.3 Modifications or alterations

4.3.1 Except as provided below, no modifications or alterations to a truck that can affect its capacity, stability or safe operation shall be made without the prior written approval of the original truck manufacturer or its successor. When the truck manufacturer or its successor approves a modification or alteration, the user shall be responsible, prior to operation, for ensuring that appropriate changes are

made to information plate(s), documents, certificates, labels, tags, operator's manual(s) and any training, if required.

4.3.2 If the truck manufacturer is no longer in business and there is no successor, modifications or alterations to the truck shall be carried out under the following conditions:

a) the design, testing and implementation of the modification or alteration is made in accordance with ISO 10896-2 by a competent person;

b) a permanent record is kept of the design, tests and implementation of the modification or alteration;

c) appropriate changes are made to the information plate(s), documents, certificates, labels, tags and operator's manual(s);

d) a permanent and readily visible label is affixed to the truck stating the manner in which the truck has been modified or altered, together with the date of the modification or alteration, and the name of the person or organization responsible for the design, testing and implementation of the modifications.

4.4 Manufacturer's bulletins

The user shall comply with the applicable bulletins as directed by the responsible entity.

4.5 Operator qualifications and training

4.5.1 Users shall allow only competent and authorized persons to operate a truck and are responsible to ensure that the operator has been trained in accordance with ISO 23676.

4.5.2 The operator shall also have read and be familiar with the operator's manual(s) and any other safety information provided by the manufacturer and user on the particular truck being operated, the application and environment in which the truck is to be used and any attachments used.

4.5.3 The user shall ensure that the operator is familiar with worksite rules and layout, working conditions, handing of load found at the workplace and local emergency procedures.

4.6 Inspection and maintenance

4.6.1 General

4.6.1.1 The inspection and maintenance of trucks shall be performed in accordance with the manufacturer's and user's recommendations. This includes:

a) a planned system for scheduled inspection, lubrication, maintenance and adjustment;

b) verification that only competent and authorized persons are permitted to maintain, repair, rebuild, adjust and inspect trucks, in accordance with the manufacturer's recommendations.

4.6.1.2 The user shall ensure that inspections and maintenance operations are conducted in an authorized area where safe clearances exist.

4.6.2 Preparation for inspection or repair

In preparation for, and prior to, starting the inspection or repair of a truck:

— park the truck on a firm, level surface;

— set the direction control in neutral, apply the parking brake, switch off the engine or power system and remove the device (for example, key, magnetic card) that prevents starting without the use of such a device;

— apply means to ensure the truck remains stationary (for example, wheel chocks and setting of a park brake);

— implement manufacturer-approved methods/devices as outlined in the operator's manual(s) to prevent unintentional movement of the truck/components before working on or around it;

— eliminate the possibility of unintentional fluid escape before any part of that system is disconnected;

— disconnect the battery before working on the electrical system, as directed by the manufacturer;

— eliminate the possibility of an unintentional stored energy release (for example, from the accumulator or hydraulic system);

— use the appropriate personal protective equipment.

4.6.3 Performance checks

4.6.3.1 Prior to conducting the performance checks, the user shall ensure that the pre-operation inspection has been properly performed as per the manufacturer's instructions and a record kept of the check.

4.6.3.2 The user shall ensure that performance checks are conducted in an authorized area where safe clearances exist.

4.6.3.3 Before starting the performance check, the operator shall:

a) check that no persons are placed at risk;

b) be in the normal operating position using the operator restraint (for example, seat belt);

c) apply service and parking brakes;

d) disengage the clutch, if the truck is so equipped;

e) place directional control(s) in neutral;

f) start the engine or power system.

4.6.3.4 The operator shall check that all control systems (for example, load-handing means, steering and brakes) and safety devices are functioning in accordance with the manufacturer's instructions.

4.6.3.5 Before exiting the truck, the operator shall:

a) stop the truck;

b) fully lower the load-handling means and set the truck in the normal access/egress position;

c) place directional control(s) in neutral;

d) apply the parking brake;

e) shut down the engine or power system;

f) remove the device (for example, key, magnetic card) that prevents starting without the use of such device.

4.6.4 Inspection and maintenance precautions

The user shall ensure that the following precautions are taken when inspection and maintenance is performed.

— Avoid fire hazards and ensure that appropriate fire protection equipment is present in the work area. Do not use an open flame to check fluid levels or for leakage of fuel, battery electrolyte or other flammable liquids. Do not use open containers of fuel or flammable cleaning fluids for cleaning parts.

— Properly ventilate the work area, including engine exhaust fumes.

— Keep the work area clean and dry.

— Do not make repairs (for example, welding of structures) or adjustments unless specifically authorized to do so in accordance with 4.3.

— When refuelling, smoking in the area shall not be permitted, the engine shall be stopped and the operator shall not be in the truck.

— Spillage of oil or fuel shall be cleaned up appropriately.

— Replace the oil and fuel tank caps before restarting the engine.

— Avoid other potential hazards associated with the inspection and maintenance of the truck not addressed in this document or the operator's manual.

— Be aware of national and local environmental regulations for managing waste oils, filters or any other source of environmental pollution.

4.6.5 Inspection and maintenance requirements

The user shall ensure that:

a) brakes, steering mechanisms, control mechanisms, warning devices, guards and safety devices, lift, reaching, levelling mechanisms, slewing upper structure brake, axle stops and frame members are carefully inspected and maintained in a safe operating condition;

b) if the truck and components are designed and approved for hazardous area operation, they receive special attention from a competent person so that the maintenance performed achieves the original, approved, safe operating conditions;

c) fuel systems are inspected for leaks, damage and deterioration;

d) hydraulic systems are inspected and maintained in conformance with the manufacturer's recommendations and hydraulic cylinders, valves and other hydraulic system components are checked to ensure that creep or leakage has not developed to the extent that would create a hazard or exceed the corresponding values given in ISO 10896-2:2016, 5.5;

e) truck safety, load chart, operation and maintenance information plates, tags and labels are maintained in a legible condition;

f) the truck is kept in a clean condition so as to minimize fire hazards and facilitate detection of loose or damaged parts;

g) replacement parts, including tyres, are approved by the truck manufacturer;

h) if any repairs that could affect the safe use of the truck are necessary, action is taken to prevent use of the truck until repairs have been completed;

i) industry safety practices are followed when fitting or removing tyres from rims, pneumatic tyres are completely deflated prior to their removal from rims and a safety cage or restraining device is used while inflating tyres;