

Australian Standard[®]

Cranes, hoists and winches—Safe use
Part 19: Telescopic handlers



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- Association of Consulting Engineers Australia
- Australian Industry Group
- Australian Institute for Non-destructive Testing
- Bureau of Steel Manufacturers of Australia
- Construction and Mining Equipment Association of Australia
- Crane Industry Council of Australia
- Department for Administrative and Information Services (South Australia)
- Department of Consumer and Employment Protection, WorkSafe Division (WA)
- Department of Industrial Relations (Qld)
- Department of Infrastructure, Energy and Resources (Tasmania)
- Department of Labour New Zealand
- Institution of Engineers Australia
- State Chamber of Commerce
- Victorian WorkCover Authority
- WorkCover New South Wales

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- Australian Truck Industry Association
-

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Australian Standard[®]

Cranes, hoists and winches—Safe use
Part 19: Telescopic handlers

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-005, Telescopic Handlers.

The objective of the AS 2550 series of Standards is to provide uniform requirements and guidance for the safe use of cranes, hoists and winches.

Published Standards in the series are the following:

AS

- 2550 Cranes, hoists and winches—Safe use
- 2550.1 Part 1: General requirements
- 2550.3 Part 3: Bridge, gantry, portal (including container cranes), jib and monorail cranes
- 2550.4 Part 4: Tower cranes
- 2550.5 Part 5: Mobile cranes
- 2550.6 Part 6: Guided storing and retrieving appliances
- 2550.7 Part 7: Builders' hoists and associated equipment
- 2550.10 Part 10: Mobile elevating work platforms
- 2550.11 Part 11: Vehicle-loading cranes
- 2550.13 Part 13: Building maintenance units
- 2550.15 Part 15: Concrete placing equipment
- 2550.16 Part 16: Mast climbing work platforms
- 2550.19 Part 19: Telescopic handlers (this Standard)
- 2550.20 Part 20: Self-erecting tower cranes

AS/NZS

- 2550.9 Part 9: Vehicle hoists

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

Defined terms or those with specific meaning are highlighted throughout the text in ***Bold Italic***.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	4
1.2 REFERENCED DOCUMENTS	4
1.3 DEFINITIONS	4
1.4 INSTRUCTIONS	5
1.5 COMPETENCY OF PERSONNEL	5
1.6 RISK ASSESSMENT	5
SECTION 2 PLANNING	6
SECTION 3 SELECTION	7
SECTION 4 SITING	
4.1 GENERAL REQUIREMENTS	8
4.2 EXCAVATIONS AND EMBANKMENTS	8
4.3 SOFT SURFACES	8
4.4 RIVERBED, TIDAL OR FLOODWATER AREAS	8
4.5 WORKING OVER CELLARS, GROUND CAVITIES OR UNDERGROUND SERVICES	9
4.6 WORKING ON STRUCTURES	9
4.7 WIND	9
4.8 EXHAUST GAS	9
4.9 PROXIMITY OF HAZARDS AND VISIBILITY	9
4.10 ENVIRONMENTAL RESTRICTIONS	10
SECTION 5 OPERATION	
5.1 GENERAL	11
5.2 OPERATIONAL INSTRUCTIONS	11
5.3 OPERATION MANAGEMENT	12
5.4 TRAVELLING WITH LOADS (PICK-AND-CARRY)	13
5.5 COMMUNICATION OF IRREGULARITIES	15
5.6 TRANSPORTATION	16
5.7 WORKING IN PROXIMITY TO AERIAL CONDUCTORS (OVERHEAD POWER LINES)	16
SECTION 6 MAINTENANCE, INSPECTION AND REPAIR	
6.1 SCOPE OF SECTION	23
6.2 GENERAL	23
6.3 MAINTENANCE	24
6.4 INSPECTIONS	24
6.5 REPAIRS	28
6.6 RECORDS	28
APPENDICES	
A MAJOR INSPECTION CHECKLIST	29
B SAMPLE LOGBOOK	37
C CHECKLIST TO DETERMINE SUITABILITY OF MANUFACTURER'S INSTRUCTIONS	41
D INSPECTION FLOW CHARTS	43

STANDARDS AUSTRALIA

Australian Standard

Cranes, hoists and winches—Safe use

Part 19: Telescopic handlers

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the safe use of telescopic handlers (hereinafter referred to as ‘telehandlers’), as defined in AS 1418.19. It is complementary to AS 2550.1, but the requirements given herein take precedence over the corresponding requirements of AS 2550.1.

NOTE: Telehandlers are also known as ‘variable reach trucks’ and ‘multi-purpose handlers’.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1418	Cranes, hoists and winches
1418.10 (Int)	Part 10: Elevating work platforms
1418.19	Part 19: Telescopic handlers
2549	Cranes (including hoists and winches)—Glossary of terms
2550	Cranes, hoists and winches—Safe use
2550.1	Part 1: General requirements
2550.10	Part 10: Elevating work platforms
AS/NZS	
3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
4804	Occupational health and safety management systems—General guidelines on principles, systems and supporting techniques
IEC	
61057	Aerial devices with insulating boom used for live working
ANSI/SIA	
A92.2	Vehicle-mounted elevating and rotating aerial devices

1.3 DEFINITIONS

For the purpose of this Standard the definitions given in AS 1418.19, AS 2549, AS 2550.1 and those below apply.

1.3.1 Competent person

A person who has acquired through training, qualification, experience or a combination of these, the knowledge and skill enabling that person to correctly perform the required task.

1.3.2 Critical component

A component whose failure would result in a risk to the health and safety of persons using the telehandler or to those in its vicinity.

1.3.3 Shall

Indicates that compliance with a statement is mandatory for compliance with the objectives and intent of this Standard.

1.3.4 Should

Indicates a recommendation.

1.4 INSTRUCTIONS

Instructions, in plain English, (including SI units) shall be prepared, maintained and made readily available to the appropriate personnel, to ensure the safe use of the telehandler. Such **instructions** should include the manufacturer's instructions, recommendations and specifications. Where any of these **instructions**, recommendations and specifications are not available from the manufacturer or are deemed inappropriate, they shall be drawn up by a **competent person**. All **instructions** shall be not less than those specified in this Standard.

1.5 COMPETENCY OF PERSONNEL

All activities required to be carried out under this Standard shall be carried out by a **competent person(s)**.

1.6 RISK ASSESSMENT

A **risk assessment** shall be undertaken by a **competent person** before carrying out the operation required to be undertaken by the telehandler. The assessment shall be in writing and shall take into account the following:

- (a) The task to be carried out.
- (b) The range of methods by which the task can be done.
- (c) The type of telehandler that will be required or that can be used.
- (d) The hazards involved and the associated risks.
- (e) The actual method and the other requisite plant and material.
- (f) Emergency and rescue procedures.

NOTE: The **risk assessment** should address the proposed operation rather than each individual lift.

As a result of the **risk assessment**, the **competent person** shall formulate a safe work method procedure, which shall be monitored for ongoing effectiveness and modified whenever it is found to be deficient, when the task changes or when the associated risks change.

NOTES:

- 1 There may be two forms of a **risk assessment**: a generic **risk assessment** that covers all routine work; and a job-specific **risk assessment** for non-routine work, which should be carried out for each operation.
- 2 Guidelines on hazard identification and **risk assessment** procedures are given in AS/NZS 4804.

SECTION 2 PLANNING

The following items shall be considered by *competent persons* and appropriate measures initiated as part of planning for the operation(s) involving a telehandler:

- (a) The selection and safe use of the telehandler.
- (b) The maintenance, inspection and safe operation of the telehandler and associated equipment.
- (c) The setting up of the telehandler.
- (d) Ensuring that the supporting structure is capable of supporting the laden telehandler.
- (e) Appraising an existing telehandler for suitability for use.
- (f) Ensuring adequate competent personnel are available for all tasks.
- (g) Ensuring suitable equipment is available for the setting up, maintenance, operation and dismantling of the telehandler.
- (h) Condition monitoring the telehandler and associated equipment.
- (i) The preparation, availability and maintenance of *instructions* for the assembly, operation, maintenance and inspection of the telehandler.
- (j) Emergency procedures for the evacuation of personnel from the telehandler, if applicable.
- (k) Procedures to deal with reasonably foreseeable situations.
- (l) Procedures to deal with reasonably foreseeable emergencies.
- (m) Where telehandlers are required to operate in or near buildings or structures, considering telehandler loadings and access at the project design stage.
- (n) Considering water flow, including tides and floods.
- (o) Considering the types of attachments required, including jibs to lift freely suspended loads and work platforms.
- (p) Interfacing with members of the public, including pedestrians and vehicular traffic. Where operation occurs on public roads a traffic management plan shall be developed and implemented.
- (q) Ensuring all necessary precautions are taken if working near live electricity.
- (r) Interfacing with local authorities where necessary to ensure notification has been made and approval granted.

S E C T I O N 3 S E L E C T I O N

The matters to be considered before selecting a telehandler for a specific operation shall be as given in AS 2550.1. In addition the following shall be considered:

- (a) The capability of the telehandler to carry out the tasks to be undertaken and its compatibility with the attachments applicable for those tasks.
- (b) Rated capacity charts are available to cover intended operation.
- (c) Working height and reach.
- (d) Mass and bulk of materials to be elevated.
- (e) Required size and actual capacity.
- (f) Wind loading.
- (g) Environmental considerations (such as exhaust emissions and noise).
- (h) Ability to travel over the terrain.
- (i) Ability to work in confined spaces.
- (j) Dimensions of the telehandler.
- (k) Mass of the telehandler.
- (l) Ability to pick and carry loads over the terrain.

SECTION 4 SITING

4.1 GENERAL REQUIREMENTS

The general requirements for the siting of telehandlers shall be in accordance with AS 2550.1.

Particular care shall be exercised to ensure that the telehandler does not operate on unstable surfaces. The overall stability and safety of the telehandler shall be checked in relation to local conditions of operation. Such conditions of operation may include some or all of the following:

- (a) On soft surfaces and in close proximity to excavation or embankments (see Clauses 4.2 and 4.3).
- (b) On sloping surfaces or undulating ground.
- (c) In riverbed, tidal and floodwater areas (see Clause 4.4).
- (d) Over or in close proximity to cellars, underground cavities and services (see Clause 4.5).
- (e) On structures such as bridge decks, wharves, jetties and suspended floors (see Clause 4.6).
- (f) On partially completed building frames or other structural supports (see Clause 4.6).
- (g) Access routes suitably prepared to allow safe operation in pick and carry mode.
- (h) On floating vessels such as barges (see AS 2550.1).
- (i) Proximity to traffic (see Clause 4.9).

Where there is doubt about the safety of a particular siting, the advice of a *competent person* shall be sought.

4.2 EXCAVATIONS AND EMBANKMENTS

Where a telehandler is required to work in the vicinity of an excavation or an embankment, the possibility of slip or collapse of the supporting surface shall be evaluated by a *competent person*. Where necessary, the excavation or embankment shall be reinforced.

4.3 SOFT SURFACES

A telehandler shall not be operated on soft or waterlogged surfaces unless appropriate measures are taken to ensure stability of the base. Mats, steel plates, timber sleepers, or similar aids shall be used to distribute the operational loads under the support points of the telehandler so that the bearing capacity of the supporting surface is not exceeded.

4.4 RIVERBED, TIDAL OR FLOODWATER AREAS

Appropriate precautions shall be taken to protect telehandlers required to stand in flowing water against specific hazards, such as scouring the surface around the machine. The effectiveness of the measures shall be regularly monitored.

4.5 WORKING OVER CELLARS, GROUND CAVITIES OR UNDERGROUND SERVICES

The site shall be checked for the presence of underground cavities, basements or underground services, ducts and the like. Where the check reveals the existence of underground cavities, basements or underground services, precautions shall be taken to ensure the telehandler is not operated in close proximity to such hazards unless written verification prepared by a competent person states otherwise.

4.6 WORKING ON STRUCTURES

Supporting structures such as bridges, wharves, jetties, building structures and concrete slabs, including a suspended concrete slabs, shall be checked by a competent person to ensure that they are structurally capable of withstanding the operational forces applied by the telehandler in both the laden and unladen conditions. If necessary, the structure shall be strengthened (e.g., by propping), at the direction of a competent person.

4.7 WIND

An assessment of the likely wind conditions at the proposed location shall be made. Consideration shall be given to wind forces acting on loads or large surfaces of the telehandler.

The exposed wind area of telehandlers shall not be increased by the attachment of signs or panels unless specifically rated for such by the manufacturer or competent person.

Unless otherwise stated by the manufacturer or competent person, permitted operational wind speed shall not exceed 10 m/s.

4.8 EXHAUST GAS

Where a telehandler is required to operate in a poorly ventilated location, appropriate artificial ventilation shall be provided.

4.9 PROXIMITY OF HAZARDS AND VISIBILITY

4.9.1 Proximity of hazards

Consideration shall be given to the proximity of hazards including the following:

- (a) Overhead power lines and services.
- (b) Nearby structures or other items of plant, such as cranes.
- (c) Excavations.
- (d) Fixed hazards.
- (e) Personnel movement within the telehandler working area.
- (f) Mobile equipment movement within the telehandler's working area including those parts of the telehandler that may encroach on the path of passing traffic.
- (g) Public access areas including roadways, railways, rivers and aircraft flight paths.
- (h) The effects of electromagnetic radiation (EMR) (e.g., busbars, strobe lights, induction furnaces, welding) on radio, infra-red or electronic controls.
- (i) Temporary installations or those installed after the introduction of the telehandler (e.g., scaffold, tilt-up bracing and formwork).

4.9.2 Visibility

The telehandler should be sited in such way that its operator has maximum visibility.

4.10 ENVIRONMENTAL RESTRICTIONS

Precautions should be taken against the effects of noise, exhaust gases, hydraulic fluids, lubricants, fuel, dust and other environmental pollutants emitted by the telehandler.

SECTION 5 OPERATION

5.1 GENERAL

The general requirements for the operation of telehandlers shall be in accordance with AS 2550.1 and operational *instructions*. Operations shall not commence until pre-operational checks are completed in conformance with Section 6.

Telehandlers may be configured with different attachments for specific uses. Telehandlers fitted with work platform attachment shall comply with the requirements of AS 1418.10(Int), and be used in accordance with the operational requirements of AS 2550.10.

All attachments used with the telehandler shall be compatible with the machine. Only attachments approved by the manufacturer or a *competent person* shall be used. Attachments and their combination with the telehandler shall comply with AS 1418.19. *Instructions* and an appropriate rated capacity chart shall be provided for each attachment.

Loads shall not be freely suspended directly from a tyne or tynes, or other attachments that have not been designed for the purpose. Where slide-on lifting attachments are used, they shall be positively secured through all operating angles of the carriage.

5.2 OPERATIONAL INSTRUCTIONS

5.2.1 General

Operating *instructions* shall be established in relation to the operation of the telehandler. Such *instructions* shall detail practices that shall be established to help eliminate or control hazards and potential risks identified in a *risk assessment* and shall be issued to all telehandler operators.

The *instructions* shall give directions on all applicable operating procedures, as detailed in this Standard, and all other identified procedures.

5.2.2 Operating instructions

The *instructions* shall include at least the following directives:

- (a) Pre-operational inspections shall be carried out by the designated person at the beginning of each working shift in accordance with the pre-operational checklist, and the results entered in the logbook.
- (b) Where pre-operational inspections reveal a safety malfunction or potential risk, the telehandler shall not be put in service until the risk has been assessed by a *competent person* and the appropriate action carried out and recorded.
- (c) All malfunctions and hazards shall be reported and properly recorded for assessment by a *competent person* and acted upon as appropriate, including immediately placing the telehandler out of service where necessary.
- (d) Telehandlers that are not in a safe condition shall be immediately removed from service until repaired.
- (e) The operational area shall be checked for proximity of hazards (see Clause 4.9) prior to and during each work shift.
- (f) The area in which the telehandler may enter during operation shall be clear of personnel, materials, tools and equipment. Care shall be taken to avoid entanglement with ropes, cables and hoses.
- (g) Unnecessary operation of the telehandler motion limits shall be avoided.

- (h) The procedure to be followed when leaving the telehandler unattended.
- (i) In the event of the operator becoming incapacitated through injury or illness and unable to continue operating duties, the telehandler shall be stopped, the operator removed from the operating area and the incident reported to a responsible person. The cause of the injury or illness to the operator shall be determined and the incident assessed by a **competent person** prior to the telehandler being returned to service. All motions shall be disabled until the telehandler has been assessed as suitable for service and a replacement operator is available.

5.3 OPERATION MANAGEMENT

The following requirements apply to the operation of the telehandler:

- (a) A logbook shall be supplied and maintained for each telehandler (see Clause 6.6).
- (b) The telehandler shall be operated within the rated capacity and design classification, including when transferring loads at any height.
- (c) Only authorized competent personnel that have the necessary physical, health and other attributes to undertake the tasks assigned to them shall be involved in the operation, inspection and maintenance of the telehandler.
NOTE: Operation of telehandlers may require a Certificate of Competency.
- (d) The telehandler shall not be put into operational service until it has been commissioned in accordance with the requirements of AS 1418.19 and its initial operation shall only take place after the sighting of an inspection and testing record signed by a **competent person**. A manufacturer may specify additional commissioning requirements.
- (e) **Instructions** applicable to the operation of the telehandler shall be provided to operators; this may include manuals where applicable.
- (f) Guarding shall be in place.
- (g) Notices applicable to the various specified operating configurations of the telehandler shall be readily accessible to the operator at all times.
- (h) Sufficient competent persons shall be available to assist the operator as required.
- (i) Procedures shall be established to deal with reasonably foreseeable emergency situations and all operators shall be fully trained in their application.
- (j) Maintenance, inspection and repairs shall be carried out in conformance with the requirements of Section 6 of this Standard.
- (k) Records shall be maintained and retained in accordance with Clause 6.6.
- (l) Appropriate personal protective equipment shall be provided and used, and personnel shall be instructed in the use of such equipment.
- (m) Personnel shall not be under the influence of any drug including alcohol, which adversely affects their performance.
- (n) Manufacturer's and other relevant safety bulletins shall be implemented.
- (o) Telehandlers shall be correctly secured when out-of-service.

5.4 TRAVELLING WITH LOADS (PICK-AND-CARRY)

5.4.1 General

Loads shall be manoeuvred in accordance with the designated travel position specified in the *instructions*. Acceleration and braking motions during travelling shall be applied gently, to minimize dynamic effects.

The load should not obstruct the operator's view of the travel path. Where this cannot be avoided, other controls shall be implemented (for example, use of no-go zones for pedestrians and other plant or the use of spotters).

NOTES:

- 1 For fixed loads of 10 t or less, the load should be no more than 300 mm above the supporting surface, and for fixed loads of more than 10 t, no more than 500 mm.
- 2 For fixed loads, the boom should be retracted as much as possible.

5.4.2 Route

The telehandler's route shall be planned to minimize its exposure to risks such as overturning. Once the route has been determined, it shall be assessed prior to operation. Where necessary, the surface shall be prepared to enable the telehandler to operate in accordance with the operating *instructions*. Where surface penetration could occur in soft surfaces, mats or other suitable travelling surfaces shall be laid.

NOTE: It may be necessary to fill surface depressions and potholes to prevent the telehandler from tilting laterally or in the direction of travelling.

5.4.3 Out of level operation

The effect of operating the telehandler out of level by more than 1% gradient shall be assessed by a *competent person* prior to its use.

5.4.4 Lateral slopes

Where the negotiation of a slope is unavoidable, the appropriate telehandler shall be used.

NOTE: Travel on slope should be up or down the slope; traversing across a slope should be avoided.

The following applies when traversing a slope:

- (a) Consideration shall be given to any adverse effect the sloping surface could have on the telehandler's working radius (see Figure 5.4.4).
- (b) The load should be carried on the uphill side of the telehandler, irrespective of the direction of travel.
- (c) Where applicable, the slewing lock should be engaged.
- (d) Where applicable, slewing should be avoided except to maintain the load in the uphill direction.
- (e) Loads should be placed on the uphill side of the telehandler and precautions taken so that the boom, jib, and telehandler remain stable on release of the load.

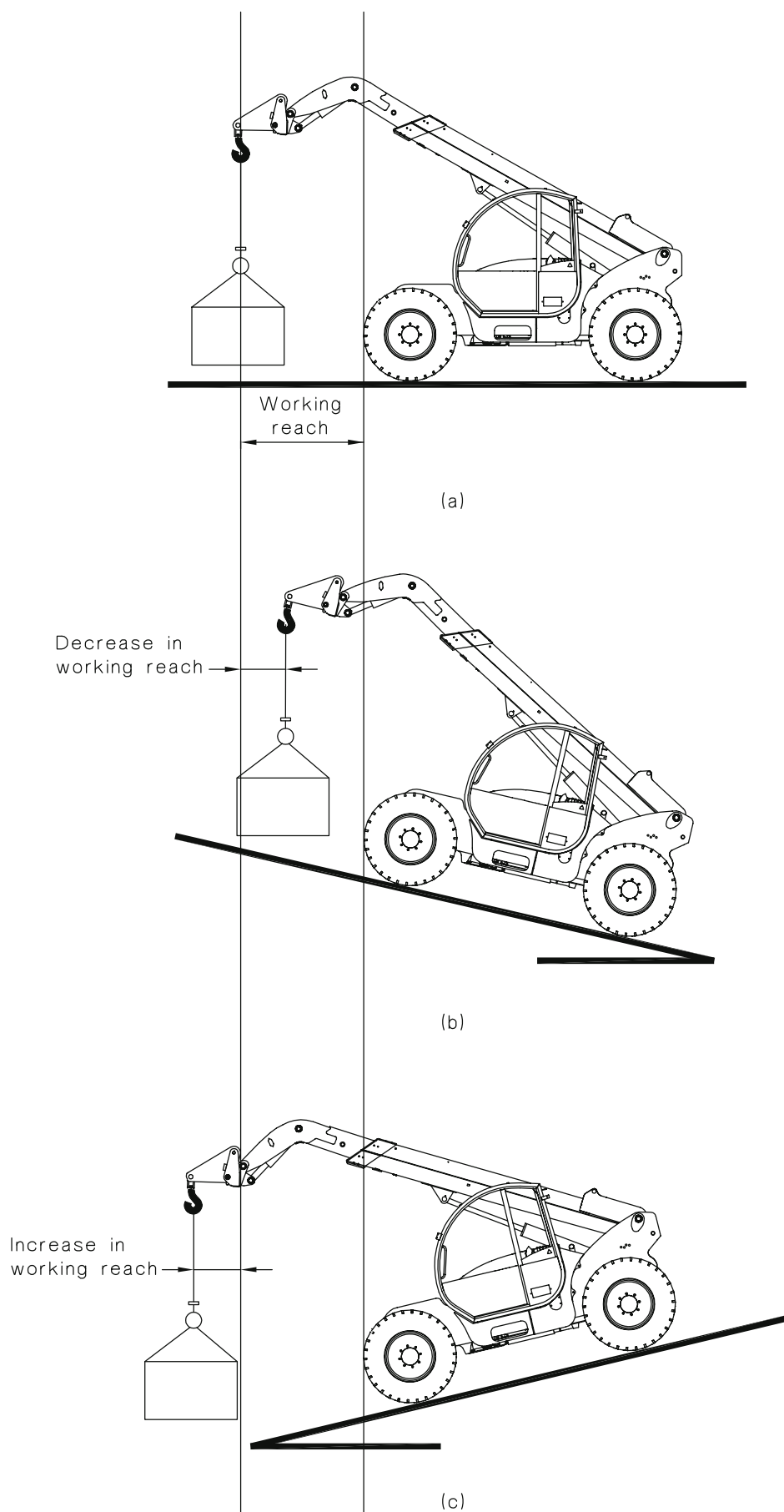


FIGURE 5.4.4 EFFECT ON WORKING RADIUS DURING WORKING OR TRAVELLING ON SLOPES