GOOD PRACTICE GUIDE
Telehandlers

TSHA

Telescopic Handler Association

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1. Introduction

1.1 Scope and application

1.2 Legislation

1.3 Standards

1.4 Disclaimer

1.5 Definitions

1. Introduction

Telehandlers (rough terrain variable reach trucks) are one of the most versatile pieces of equipment used in the construction and agricultural industries.

Unfortunately, the very versatility that makes them so useful also provides scope for unsafe use; this has led to a significant number of serious incidents.

As with all lifting equipment, safe operation of telehandlers depends on a number of factors including the selection and maintenance of the telehandler, the planning and supervision of its use, and the competence of the operator.

If any of these are deficient, the risk of a serious accident increases significantly and it is therefore essential that all telehandler operations are planned, supervised and carried out safely by competent people.

The causes of these accidents have included:

- not fully assessing the hazards and risks of the job, site and the equipment.
- not following the manufacturer's recommendations
- inadequate training and supervision
- equipment failure.

These guidelines outline the safe work practices on how to use and maintain telehandlers safely and help duty holders meet their obligations under the Work (Occupational) Health and Safety Acts and Regulations in force in each state of Australia. Duty holders include employers, employees, principals, designers and manufacturers, hirers and suppliers engaged in work associated with telehandlers.

This document is based on the current knowledge for the safe use of telehandlers. There may be other methods or processes that meet the requirements for providing a safe workplace under the WHS Act.

The Good Practice Guidelines for telehandlers are not industry specific. Some industries have guidelines that deal with specific problems faced in their working environments, such as the construction sector or agriculture. When deciding how to do a job safely, make sure you check any industry specific guidance. These guidelines may apply to the following activities and industries:

- agriculture and farming
- building and construction
- forestry
- plant and machinery hire
- military support
- stock picking
- freely suspended loads.

1.1 Scope and application

The Telescopic Handler Association (TSHA) has created these guidelines to share the current state of knowledge (the best available at the time of publication) on the safe design, use and maintenance of telehandlers.

It includes the principles and requirements for using telehandlers that are common across a broad range of industries and applications. These guidelines apply to telehandlers when fitted with a variety of attachments.

This document refers to other guidance material about telehandler safety and hazard control measures. This includes industry standards, codes of practice, guidelines, manufacturers' instructions and other material.

What is a telehandler?

A telehandler is a mobile, all-terrain machine fitted with a telescopic boom and a lifting attachment.

It can also be known as a telescopic materials handler or variable reach truck.

The lifting mechanism consists of a telescoping boom at the end of which is fitted a mechanism which facilitates the quick interchange of attachments, commonly referred to as a "quick hitch".

Telehandlers may also have designated lifting points that may be fitted to the boom structure.

Attachments used with telehandlers can include forks; jibs, hooks and winches for suspended loads; buckets for moving bulk material such as earth, animal waste, or grain; skips, sweeps and cleaners; clamps such as hay bale grabs and tyre handlers; and work platforms.

These guidelines do not apply to the following:

- Forklift trucks.
- Mobile cranes.
- Machines designed primarily for earth moving.
- Machines designed primarily for container handling.
- Telehandlers when fitted with a work platform and so configured as a MEWP.

TSHA information sheet on telehandlers with work platforms

1.2 Legislation

Throughout this document reference is made to the Work Health and Safety Act and Regulations. In Australia, each state and territory has its own legislation. Where reference is made to the Act or Regulations it should be taken as referring to the equivalent legislation in each state or Territory. A list of the relevant legislation is contained in Section 10.5.

1.3 Standards

This Good Practice Guide has been developed based upon the following publications of standards:

AS 10896.1:2019

AS 2550.19:2007

AS 1418.5:2013

References to other standards (outside of the above mentioned) are assumed to relate to the latest publications of the noted standards.

1.4 Disclaimer

Reasonable care has been taken by the Telescopic Handler Association in the compilation of the information contained in this Good Practice Guide and in the verification of its accuracy when published, however its content is subject to change without notice due to factors outside the control of the Telescopic Handler Association and therefore this Good Practice Guide should be used as a guide only. For example, the technology and know-how contained in this Good Practice Guide are continually improved through industry research and development and this may lead to information in this Good Practice Guide being altered without notice and/or being inaccurate for a period of time. The Telescopic Handler Association makes no representations or warranties of any kind, express or implied, about the accuracy, reliability, currency, completeness and suitability of the information contained in this Good Practice Guide and readers should consult a professional before relying on the information contained in it.

The Telescopic Handler Association does not accept any responsibility whatsoever for any error or misrepresentation in this Good Practice Guide and to the extent permitted by law disclaims all liability to any person in respect of any claim, loss, damage or other harm, direct or consequential, arising out of or in relation to the use and reliance, whether wholly or partially, of any information contained in this Good Practice Guide.

1.5 Definitions

Actual capacity Maximum load, established by the manufacturer based on component strength and truck stability, that the truck can carry, lift and stack to a specified height, at a specified load centre distance and reach in normal operating conditions. *See also Rated Capacity.*

Attachment Device which can be attached to the boom of a telehandler, either directly or via a quick hitch for a specific use, i.e. forks, jib, grabs or bucket.

Chain of Responsibility (COR) A concept used to place legal obligations on parties in the transport supply chain.

Chassis inclination The permissible inclination of the chassis, either longitudinally or laterally, defined by the manufacturer, for stationary operation. Note: there may be more than one permissible chassis inclination.

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. Note: different types of telehandlers require different competencies, including appropriate training and/or qualifications.

Critical component One whose failure could result in a risk to the health and safety of persons using the telehandler or in its vicinity.

Familiarisation Demonstration of the machines control functions and safety devices to a trained operator. The familiarisation must be carried out by a trained operator/trainer – someone who has adequate knowledge of that particular machine.

Fork extensions Extensions to increase the length of fork arms and used to reach loads in deep racking or to handle extra depth loads. This may also be known as fork arm extensions or fork slippers.

Ground bearing pressure The force exerted on the surface at the telehandler wheels or outriggers under static loading. The maximum ground bearing pressure of a telehandler is the highest pressure that would occur within the operating limits of the machine. Also known as ground contact pressure.

Lateral stability Stability of the telehandler at right angles to the centre line of the machine. i.e. the tendency to tip sideways.

Level ground Ground with a gradient of 0±2%.

Lift height Height from the ground to the upper face of the fork arms.

Lifting attachment Hook or jib which can be attached to the boom of the telehandler, either directly or via a quick hitch, to facilitate the lifting of suspended loads.

Standard load centre Distance from the centre of gravity of the load, horizontally rearwards to the front of the fork shanks.

Load chart A visual representation of actual capacity zones for the range of boom angles and extensions for the telehandler and any stabilising devices. This is based on the results of stability tests and/or other limitations. This load chart may be either printed or displayed on an electronic load management system.

Longitudinal load moment indicator Device that warns the operator of a change to the load or its position which would alter the longitudinal stability.

Longitudinal load moment control Device that prevents the operator changing the load handling geometry in direction(s) which would increase the longitudinal load moment, beyond the allowable limit(s).

Longitudinal stability Stability of the telehandler along the centre line of the machine. i.e. the tendency to tip forwards or backwards.

Non-slewing telehandler A telehandler with movement not greater than 5° to either side of the longitudinal axis.

NHVL National Heavy Vehicle Law. Laws administered by the National Heavy Vehicle Regulator for heavy vehicles over 4.5 tonne gross vehicle mass.

Operator A person who controls the movements of the telehandler.

Outriggers Devices attached to the chassis to adjust its inclination to increase stability. Also known as stabilisers.

PCBU A person who conducts a business or undertaking whether alone or with others and whether or not the business or undertaking is conducted for profit or gain. A person does not conduct a business or undertaking to the extent that the person is engaged solely as a worker in, or as an officer of that business or undertaking.

Pick and carry The operation where a telehandler is driven whilst carrying a load.

Quick hitch Device to facilitate the efficient connection and removal of attachments to telehandlers without the use of tools. Also known as quick couplers, attachment brackets or quick fastening.

Rated capacity (truck) Maximum load permitted by the manufacturer at the standard load centre distance that the truck is capable of lifting and transporting on fork arms in normal conditions with the boom fully retracted and lowered. This was previously known as maximum capacity.

Rated capacity (attachment) Maximum load that the attachment is permitted by its manufacturer to handle in normal operation under specified conditions.

Reach Horizontal distance from the front of the tyres to the load.

Reasonably practicable Defined in the Work Health and Safety Act as that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including:

- the likelihood of the hazard or the risk concerned occurring; and
- the degree of harm that might result from the hazard or the risk; and
- what the person concerned knows, or ought reasonably to know, about the hazard or the risk and ways of eliminating or minimising the risk, and
- the availability and suitability of ways to eliminate or minimise the risk; and
- after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

Safety observer A person specifically assigned the duty of observing and warning against impending hazards and who can undertake emergency procedures such as emergency retrieval if necessary. See also *Spotter.*

Shall or must Indicates a legal requirement.

Should Indicates recommended best practice.

Slew The rotational movement of the boom relative to the chassis or wheels.

Slewing telehandler A telehandler which can be slewed greater than 5° to either side of the longitudinal axis.

Spotter Person specifically assigned the duty of observing and warning against unsafe approach of the telehandler to electrical apparatus such as overhead power lines.

Stability triangle Diagrammatic representation of the tipping lines for a non-rotating boom telehandler with a pivoting rear axle.

Stacking Placing loads, often pallets, on top of each other in a vertical stack.

Statement of attainment (SoA) A statement issued to a person confirming that the person has satisfied the requirements of the unit(s) of competency specified in the statement.

Supply Defined under the WHS Act as a supply or resupply of a thing by way of sale, exchange, lease, hire or hire purchase, whether as a principal supply or agent.

Telehandler A wheeled, counterbalanced, powered truck which embodies a variable reach lifting mechanism consisting of a telescopic elevating boom, normally equipped with a fork carrier at its expanding end. Also known as a rough terrain variable reach truck.

Tipping line The horizontal line about which a telehandler will rotate, should it overturn.

Unit of competence (UoC) The specification of the standards of performance required in the workplace.

WHS Act Work (Occupational) Health and Safety Act applicable in the relevant State or Territory in Australia.

WHS Regulations Work (Occupational) Health and Safety Regulation applicable in the relevant State or Territory in Australia.

2. Safe work practices when using telehandlers

2.1 Risk management

2.2 Identify hazards

2.3 Assess the risk

2.4 Control the risk

2.5 Main hazards associated with telehandlers

2. Safe work practices when using telehandlers

Identifying hazards and putting control measures in place makes using telehandlers in the workplace safer.

Duty holders must choose the best telehandler for the task, given the type of work and the work environment. The work needs to be properly planned and hazards managed at the worksite. Proper planning not only involves those activities at the work site but also those tasks performed in getting the telehandler to the work site.

Persons involved in the transport and handling of telehandlers must observe the obligations imposed under National Heavy Vehicle Law (NHVL) and the Chain of Responsibility (COR). See Section 5.

Operators must be trained and competent before using the telehandler and must follow the manufacturer's operating instructions. Training requirements are covered in Section 8.

People can be seriously injured or killed when using a telehandler in the following ways:

Crushing An operator can get trapped and crushed between the booms or load and a fixed structure. Operator must keep body parts within the confines of the cabin and wear the seat belt when the telehandler is moving.

Overturning On a slope or an uneven or soft surface, the telehandler can overturn. A telehandler can also overturn if driven with the boom raised, placed on an excessive slope, used at excessive speed or if it is overloaded.

Collision The telehandler may hit pedestrians, nearby vehicles or structures. The telehandler may be hit by passing vehicles.

Electrocution An operator, or personnel at ground level may suffer from an electric shock if the telehandler comes into proximity or contact with live electrical apparatus (e.g. overhead power lines). Electrical hazards can also arise from on-board electrical supplies (batteries, battery chargers, generators), working in storms, or static electricity.

Falls from height Using the telehandler with a makeshift work platform, a work platform that slips onto the forks or standing directly on the forks/bucket is an extreme risk. Personnel are more likely to fall from non-standard work platforms. Always use a work platform that is directly mounted and fixed to the telehandler (not on forks) and is approved for use by the telehandler manufacturer.

2.1 Risk management

Planning a safe way to do a job can help identify the hazards using a telehandler. Planning safe work includes a risk management process, which is:

- Identify the hazards – find out what could cause harm.
- Assess the risks – understand the nature of the harm and what could be caused by the hazard, how serious it could be and the likelihood of it happening.

- Control the risks – implement the most effective control measures that are reasonably practicable in the circumstances. This includes selecting the right telehandler for the task and workplace.
- Review the control measures – ensure they are working as planned.

The following codes of practice are useful tools to assist in managing risk:

Managing work health and safety risks

Managing risks of plant in the workplace

The WHS Act requires you to consult with workers who carry out work for you. If workers are represented by a health and safety representative then the consultation must involve that representative.

Further guidance is available in the Safework Australia Code of Practice: Work Health and Safety Consultation and Co-operation and Co-ordination.

2.2 Identify hazards

Identify and assess all hazards for each job, site or task.

These are some ways to identify hazards while working with a telehandler:

- Consult the manufacturer's operators manual. This will provide users with information on the intended use of the telehandler and operating specifications, and residual hazards and precautions necessary to minimise the risk.
- Physical inspections – walk around the workplace using a checklist to identify hazards.
- Task analysis – look at each task and identify the hazards involved.
- Process analysis – identify hazards at each stage of the project or piece of work.
- Review accident and incident investigations – identify hazards and see what caused any accidents using investigations of accidents on similar equipment or work. Information can be obtained from the TSHA and Regulators.

2.3 Assess the risk

2.3.1 Estimate the severity

- Estimate the severity of the harm that could occur. Could the hazard cause death, permanent injury, illness, or minor injuries needing first aid?
- What factors could influence the severity of harm?
- How many people are exposed?
- Could the occurrence of an event escalate?

2.3.2 Estimate the likelihood of the harm occurring

- How often are people exposed to the hazard?
- How long are they exposed to the hazard?
- Are there external influences that might increase the likelihood? e.g. hot conditions, high winds.
- Could the way people behave increase the likelihood of the risk?

2.4 Control the risk

Risk controls must be implemented in the following order (See Reasonably practicable definition and Section 10.3.1).

2.4.1 Level one controls

Eliminate the hazard. For example:

- Arrange for electrical supply to be disconnected from overhead power lines.
- Re-route around a slope instead of driving the telehandler across the slope. Transport the telehandler to the base of the slope.

2.4.2 Level two controls

- Substitute the hazard with something safer, for example a different telehandler.
- Isolate the hazard from people, for example using barricades
- Use engineering controls for example guards or interlocks.

2.4.3 Level three control measures

Use administrative controls such as work methods or procedures that are designed to minimise exposure to risk.

Use personal protective equipment.

First try and eliminate the hazard, but if that's not possible, then isolate it, and as a last resort try to reduce the harm that could be caused by a hazard, by minimising it. A combination of controls may need to be used.

Develop ways to control the hazards that use 'group controls' (restrict pedestrian access) that protect more than one worker from a hazard. Group controls are better than 'individual controls', which protect only one person (such as safety glasses).

2.5 Main hazards associated with telehandlers

In this section some of the main hazards of using telehandlers are listed along with recommended control measures. For useful checklists see Section 11.

2.5.1 Crushing

Operators should:

- Be briefed on the risks of travelling with loads.
- Be aware of the surroundings and the movement of people and vehicles on the job site.
- Ensure the telehandler is fitted with a FOPS cabin.
- Never allow personnel to enter the area under a raised load.
- Never leave the cabin if the booms are raised.
- Work with obscured or obstructed visibility.

2.5.2 Falls from Height

Personnel are more likely to fall from non-standard work platforms. To work at height:

- Use a work platform that is directly mounted and fixed to the telehandler (not on forks) and is approved for use by the telehandler manufacturer.
- The telehandler with work platform must comply with AS/NZS1418.10
- The telehandler with work platform must be design-registered in Australia
- The operator must be trained and competent to operate a boom-type EWP, for example with the EWPA Yellow Card.

NEVER USE A telehandler with a makeshift work platform. A work platform that slips onto the forks or standing directly on the forks buckets is an extreme risk.

2.5.3 Overturning

Operators should:

- Be briefed on the risks of travelling with loads.
- Be aware of their working environment at all times including the ground conditions.
- Ensure the telehandler is fitted with a ROPS cabin.
- Wear the seatbelt.

When load handling with the telehandler:

- Move at speeds that allow full control of the telehandler.
- Only handle loads in compliance with the load chart.
- Take care when travelling over rough terrain.

2.5.3.1 Travel on a slope

Driving or travelling along a slope is a high risk factor for overturning. The risk is increased if a freely suspended load or an unsecured load is carried, with the potential for the load to shift and reduce the telehandler's stability.

Operators should:

- Travel directly up or down a slope, then traverse along level ground.
- Lower the boom before travelling on a slope.
- Avoid re-positioning the boom when on a slope.
- Secure loads that could shift.
- Move at a safe speed.
- Avoid travelling across a side slope, or avoid reversing down a slope.

2.5.3.2 Ground conditions

- Use the telehandler on firm and level ground where possible. Problems such as trenches, manholes, underground services and soft ground conditions can cause a telehandler to overturn.
- Make sure any covers used to block holes are strong enough to take the whole weight of the telehandler, including the rated capacity.
- Use spreader plates when needed because of the ground conditions. They should be made of a material that gives good grip to both the wheel or outrigger foot and ground
- Periodically check the ground under wheels or outriggers to make sure it hasn't subsided or shifted.
- Consult site safety officer and/or civil engineer if required.
- Review the ground condition survey.

Determine the telehandler ground pressure

The ground pressure can be found from the following information that may be listed on the serial plate and in the operators manual.

- The maximum wheel load or outrigger load.
- The unladen mass of the telehandler and axle loads.
- Ground bearing pressure in both laden and unladen condition.

Use this information to verify if the ground or support surface is able to support the telehandler.

Table 1: Maximum ground pressures for various ground conditions

Table 1 gives the maximum permissible pressures that can be applied to various ground types.

Ground type	Maximum permissible ground pressure P_{MAX} (kg/m^2)
Hard Rock	200,000
Shale Rock or Sandstone	80,000
Compacted Gravel	40,000
Asphalt	20,000
Compacted Sand	20,000
Stiff Clay (dry)	20,000
Soft Clay (dry)	10,000
Loose Sand	10,000
Wet Clay	10,000

Example calculation of the required size of spreader pad

To determine the minimum required area under a wheel or an outrigger foot:

e.g. The telehandler is situated on asphalt and the maximum outrigger load stated on the telehandler is Po = 5000kg

The permissible ground pressure for Asphalt is P_{MAX} = 20,000kg/m^2

The required area under the outrigger foot is = 0.25m^2

Equivalent to a square pad of = 0.5m x 0.5m

TSHA information sheet on consequences of operating on soft ground

2.5.3.3 Wind

All telehandlers can work in wind, up to a maximum rated wind speed. The maximum wind speed rating should be clearly marked on load charts for each approved attachment. The telehandler must not be operated beyond the maximum limits.

Precaution must be taken when handling loads to account for wind forces.

A traditional method of assessing wind speed is using the Beaufort wind scale. This scale relies on an operator looking at their environment to figure out wind speed. This can lead to the operator underestimating the wind speed and its hazards. Wind speed increases with height and may be 50 per cent faster 20 metres above ground.

An accurate way of measuring wind speed is by using an anemometer. This is a common tool used to assess weather conditions.

- Building cladding, sheet materials, panels and other such materials can act as sails and make tip-over more likely, especially in gusty wind conditions. Poor weather can affect the telehandler stability and make use unsafe.

- Wind speeds increase with height and can be amplified around obstructions such as buildings (funnelling effect) or over buildings. Beware of increased wind speeds when elevating above the side of buildings.
- Beware of gusty conditions; changes in wind speed can be up to 50 per cent of the average.
- Never operate in storms.

The below information sheet issued by the Elevating Work Platform Association of Australia (EWPA) provides useful insights into the effects of wind load on mobile elevating work platforms (MEWPs). This is relevant not only to telehandlers operating in a MEWP configuration (i.e. with an approved work platform attachment), but also to telehandlers carrying loads with cross sectional areas that can be affected by adverse wind conditions.

Effect of Wind and Side Forces information sheet

2.5.4 Uncontrolled/unexpected movement

Operators should check that all controls:

- Return to neutral when released.
- Are protected against inadvertent actuation (e.g. accidentally knocking the controls).
- Are protected against operation whilst standing on the ground next to the cabin.
- Are clearly marked with their function and direction of movement.

2.5.5 Falling objects

Operators should:

- Isolate the area around the telehandler so that falling objects would not strike people below.
- Anyone working nearby should wear a hard hat.
- Ensure the telehandler is fitted with a FOPS cabin.

2.5.6 Load handling

Check the mass, dimensions and distribution of the materials being lifted to ensure it does not exceed the rated capacity of the telehandler or the rated capacity of the attachment.

- Plan the route.
- Inspect the area prior to commencing the task, paying particular attention to the ground conditions. See Section 2.5.3.2.
- Where possible avoid driving with the boom raised, this increases the height of the centre of gravity (CoG) of the truck making it more likely to overturn.
- Handling freely suspended loads introduces greater risk than the same mass of a fixed load on forks. Use extreme caution when handling freely suspended loads. The dynamic effects of a swinging load may cause the telehandler to overturn. See Section 7 for freely suspended loads.

- Only use attachments which are approved for use by the telehandler manufacturer or a Competent Person.

- Attachments that are approved by a Competent Person and not the telehandler manufacturer need a complete load chart for all configurations of the telehandler. This load chart needs to be verified by stability testing. The load chart and instructions are to be provided by the attachment supplier and verified by the Competent Person.

2.5.7 Proximity and working near other machines, vehicles or pedestrians

Check the area for nearby hazards, such as overhead power lines, traffic or dangerous machinery. See Section 2.5.9.

- Restrict access to pedestrians so that they cannot walk into the work area.
- Use barriers to keep pedestrians and traffic separated from where telehandlers are working.
- Operators should ensure that personnel are clear of the area immediately adjacent to the machine.
- If working or travelling on public roadways implement a traffic management plan.
- Segregate the working area from vehicles. Consider the height and size of trucks and buses that may pass by.
- Ensure vehicles are conspicuous (e.g. use flashing beacons/rear chevrons).
- Use a safety observer to provide an extra set of eyes to watch the movement of the load and the telehandler near structures, vehicles and pedestrians.
- Use a spotter (qualified electrical) when working near power lines and other electrical structures.
- Implement worksite protocols (right of way, clearance, speeds) where multiple machines may be working in proximity
- Ensure that there is adequate lighting and visibility.

2.5.8 Travelling on public roads

- Comply with all local government laws for licencing, registration and road rules.
- Beware of overhead obstacles.
- Lower the boom so that the load is no more than 300mm above the ground when travelling.
- Travel at a speed for the prevailing conditions.
- Do not travel with loads on public roads unless a permit has been granted by the relevant authorities.

2.5.9 Electrical hazards

Any hazard assessment must identify:

- All overhead power lines near the workplace
- All trees, structures and work positions that are within 6.4 metres from power lines.

Trees can conduct electricity if they are too close to or touch live power lines. All safety plans must include these identified hazards and give details of how the hazards are controlled.

Treat all overhead power lines as being live, unless the power company that owns the power lines formally advises that the lines are safe.

Telehandlers must not be operated above or approach closer than:

- 6.4 metres from distribution lines on poles, or
- 10 metres from transmission lines on towers.

This includes any loads, attachments or equipment.

The exception is where the electricity distributor has been notified and written permission from the distributor has been obtained.

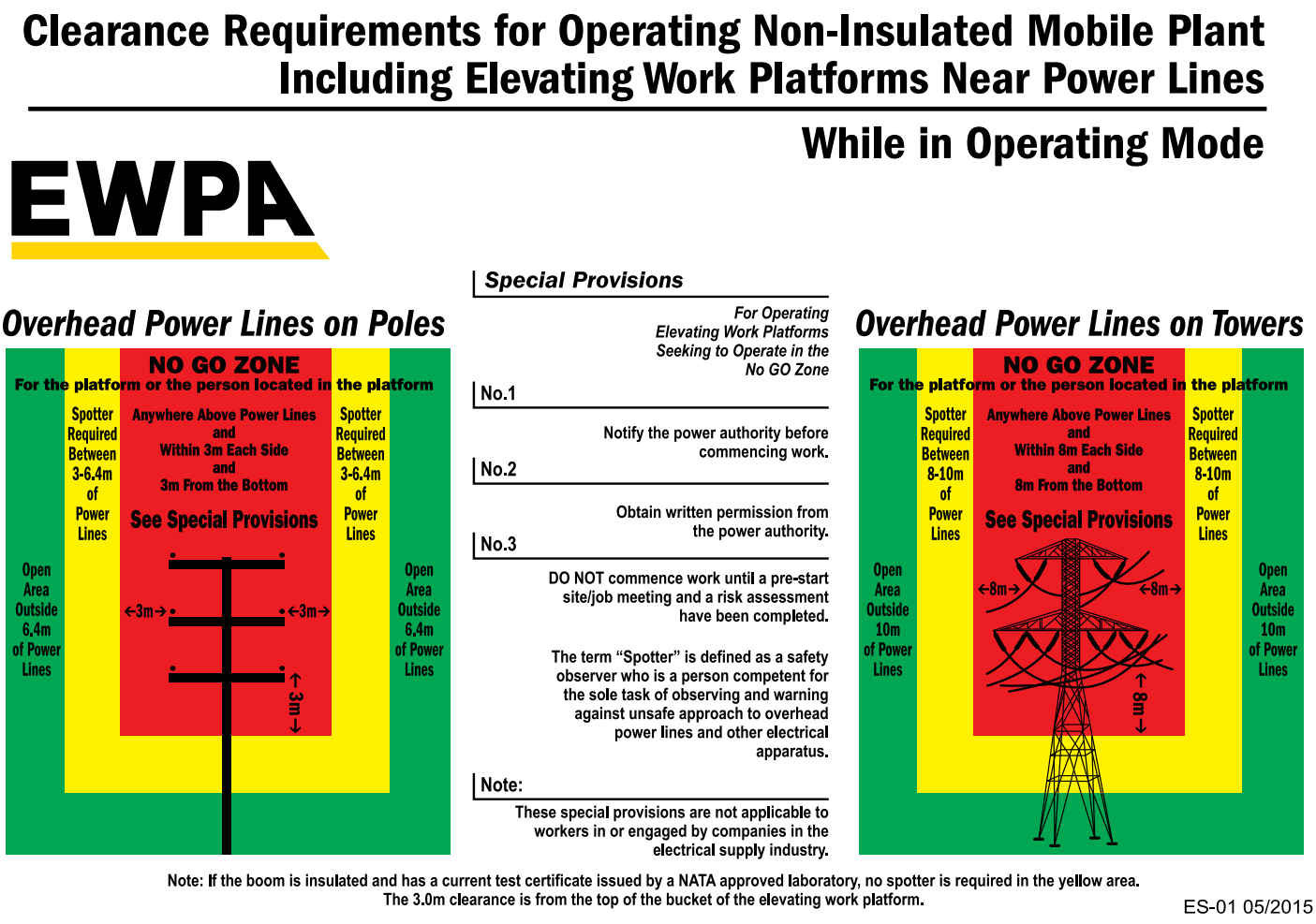


Figure 1: Power line clearance requirements

For further information see:

Distance from power line information sheet

General guide for working near power lines

2.6 Emergency procedures general

2.6.1 Operator

- Push the emergency stop button.
- Apply the handbrake to prevent the telehandler from rolling.
- Lower the booms and load so that the load is resting on the ground (if possible).
- If the main exit is blocked then go out through the emergency exit. This is usually the rear window.
- Contact emergency services if required (Dial 000).
- Any damage to the telehandler is repaired by Competent Personnel.

2.6.2 Ground personnel

- Assess the area and the machine for hazards.
- Contact emergency services if required (Dial 000).
- Assist the operator from the cabin.
- Apply the handbrake.
- Lower the booms and load so that the load is resting on the ground (if possible).

2.7 Emergency procedures for electrical contact

If a telehandler does touch overhead power lines, anyone in the telehandler should stay there and warn any others nearby to stay clear. If it is safe to do so, operate the controls to break contact.

If it is not safe to break contact:

- Call for help, warning everyone to keep well clear of the machine.
- Stay put until the power company can de-energise the line and advise that it is safe to get out of the telehandler.

If help is not immediately available, electrical contact cannot be broken and there is an urgent reason to get out of the telehandler (such as fire):

- If possible, switch off the motor (do not approach the telehandler to turn it off).
- Remove any loose clothing.
- If you are about 1 metre above the ground, jump so that you are well clear of the telehandler before any part of you touches the ground.
- Shuffle or take small jumps with the feet together to move away from the telehandler.
- Do not touch the telehandler until the power company advises it is safe to do so.

Telehandlers that have been in contact with a live aerial conductor must be withdrawn from service and checked by a Competent Person. See AS2550.19.

3. Planning the work

3.1 Stages of planning

3.2 Identify the tasks to be done

3.3 Identify the hazards associated with the tasks

3.4 Pick the right telehandler and attachment

3.5 Identify control measures

3.6 Develop the plan

3.7 Plan what to do in an emergency

3.8 Record the plan, including any rescue plan

3.9 Involve people and talk to everyone working on the job about the plan

3.10 Review the plan before the job starts

3. Planning the work

Before starting the job, the first step is to plan how to do the work safety. The nature of the task and the hazards associated with the operation determine how much planning is needed.

3.1 Stages of planning

All operations should be planned by a Competent Person who must ensure that the planning includes at least the following:

1. Identify the tasks to be done.
2. Identify the hazards associated to each task.
3. Pick the right telehandler for the job.
4. Identify control measures.
5. Develop your plan.
6. Make a plan for what to do in an emergency.
7. Record the planning, including any rescue plan.
8. Involve people and talk to everyone working on the job about the plan.
9. Review the plan before the job starts and add any changes.

3.2 Identify the tasks to be done

Identify exactly what work needs to be done, where and when.

- Visit the location and check the conditions of the worksite. Take along site staff who can identify hazards in the area and any problems with the ground where the telehandler will need to work.
- For simple tasks, planning could happen at the same time as the site visit. For more complicated jobs planning may need to be completed off site.
- Consider the load and how it will be secured.
- Consider access to the site and the work position, the reach required and the ground conditions.

3.3 Identify the hazards associated with the tasks

Identify the hazards of each task and assess the risk. These might be caused by the location of the work, the type of telehandler or the people and equipment being carried.

3.4 Pick the right telehandler attachment for the job

Telehandlers vary in rated capacity, lift height and reach. Manufacturers provide load charts showing the actual capacities and working range. Figure 2 shows an example. The telehandler that best matches the particular work task should be chosen. The choice will be guided by the limits of the worksite, ground conditions, site access and how near the public or other workers will be. Consider all the available options before selecting a suitable telehandler and attachment.

Where other equipment is more suitable, it should be used.

Select a telehandler that can comfortably reach the area where the task is to be performed and has sufficient load capacity at the specified lift height and reach.

- Consider exhaust emissions.
- Select the correct attachment for the load which is going to be handled. Ensure the rated capacity of both the telehandler and attachment are adequate.
- The attachment must be approved by the telehandler manufacturer for use on the particular telehandler model.
- If the telehandler has to travel on public roads ensure it meets the requirements of the local authorities.
- If the load is large ensure the fork tines are long enough to fully support the load.

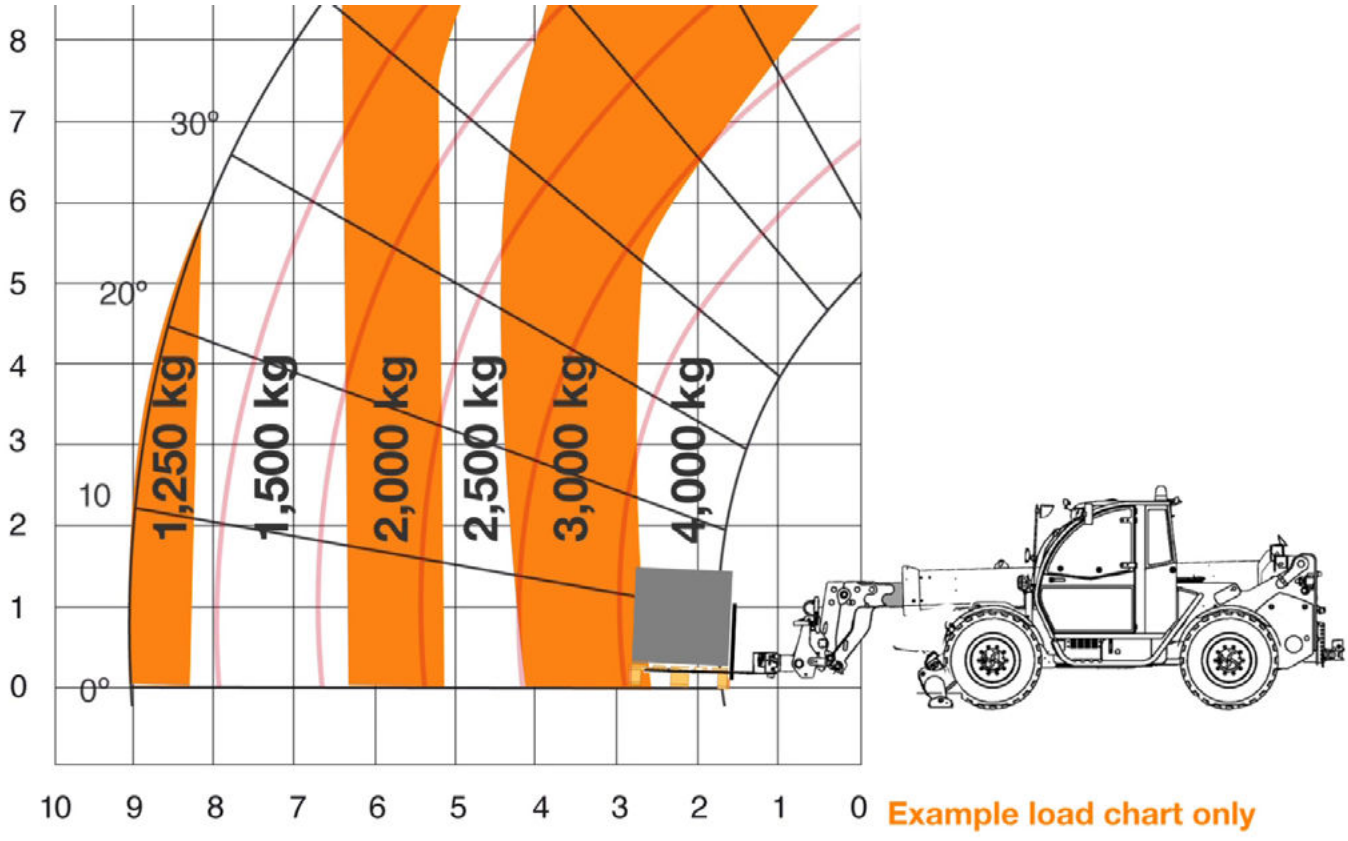


Figure 2: Refer to the operators manual or load chart to establish the working envelope

3.5 Identify control measures

Once the hazards and the risks are identified, control measures to eliminate, isolate or minimise the hazard need to be put in place.

Control measures will include any personal protective equipment to be used, such as hard hats and high visibility clothing, traffic management measures and travel routes.

3.6 Develop the plan

Having identified the hazards, evaluated the risks and worked out the control measures needed to do the job safely, develop an operation plan. This should include consultation with those who will be undertaking or affected by the task.

3.7 Plan what to do in an emergency

The WHS Regulations require an Emergency plan to be prepared for the workplace. The plan must provide for:

- **an effective response to an emergency**
- **testing of the emergency procedure;**
- **information, training and instruction in relation to implementing the emergency plan.**

The plan needs to include:

- How you will rescue anyone trapped in the telehandler if the main exit can't be accessed for any reason such as a roll over.
- Contact with overhead power lines or electrical apparatus so that the telehandler is energised.
- What to do in case someone is sick, injured or exposed to chemicals or fumes.

All sites need an emergency plan in place.

- Before starting any rescue, do a hazard assessment.
- Consider the actions required of a safety observer and the operator.

Call emergency services if there is an injury, illness or risk of exposure to toxic substances.

3.8 Record the plan, including the rescue plan

Record the plan and keep a copy onsite where it can be easily accessed. The length and detail of the plan will depend on the complexity of the task and the risks involved.

A simple, low-risk task – such as routine maintenance work in a factory – might only need a brief safety plan; while a more complex and high-risk job will need a more detailed, task-specific plan.

3.9 Involve people and talk to everyone working on the job about the plan

A critical part of successful planning is making sure everyone knows what is in the plan. Make sure the plan can be understood by people with low literacy or for whom English is a second language.

3.10 Review the plan before the job starts

Just before the job starts, check that nothing in the tasks or the working environment has changed. If it has, assess what effect that could have on the safety of the job and update the plan.

Communicate any changes to the plan to everyone involved.

4. Design

4.1 General requirements

4.2 Types of telehandlers

4.3 Stability

4.4 Visibility

4.5 Telehandler safety features

4.6 Controls

4.7 Instructions

4.8 Attachments

4.9 Load charts

4.10 Marking documentation and records

4. Design

All telehandlers must be designed using sound and accepted engineering practices and must be manufactured using the best methods and practices.

4.1 General requirements

The design, manufacture and testing of new or used telehandlers first entering service should meet

- AS 10896.1:2019 Rough-terrain trucks – Safety requirements and verification – Part 1: Variable-reach trucks.

For slewing telehandlers there is not currently a specific Australian Standard, so AS 1418.5 is referenced. Also consider the requirements of ISO 10896.2 and EN 1459.2.

You can use materials, designs, methods of assembly, or procedures that are not covered in this guidance if they achieve the same or better safety outcomes.

There are some differences between AS 10896.1 and other international standards and it is necessary to exercise caution if telehandlers to other standards are used. Telehandlers complying with other standards may not provide an equivalent level of safety to AS 10896.1.

4.1.1 Design registration

As a general rule there is no requirement for telehandlers to be design registered with a State Regulator in accordance with WHS Regulations.

However there are some exceptions depending if:

- A slewing telehandler with rated capacity exceeding 10 tonne
- A non-slewing telehandler with rated capacity exceeding 10 tonne and designed to handle suspended loads.

In some cases the requirement is to design-register and item-register the individual telehandler with the State Regulator.

Design registration requirements information sheet

4.1.2 Imported telehandlers and second-hand telehandlers

The owner should register any used machines with the manufacturer (or their Australian representative), when selling or importing the machine. This ensures the new owner gets all service and safety bulletins.

Also required are continuous working records and maintenance records as specified in Section 6.6 of AS 2550.19 Cranes, Hoists and Winches – Safe Use – Telescopic Handlers.

If an imported second-hand telehandler does not have evidence of a continuous service record, it must have a major inspection before use as described in Section 8.4.6.

4.1.3 Modification of a telehandler

If a telehandler is altered or changed, the owner should get approval from the manufacturer or (if the manufacturer no longer exists) a report from a Competent Person to confirm that the telehandler still meets the requirements of these guidelines. Significant modifications will typically require design registration as an alteration to the existing design. See Section 4.1.1.

4.1.4 Rated capacity

The rated capacity of the telehandler is the maximum load it can pick up with standard forks and drive. Prior to 2019 rated capacity was known as maximum capacity. It could also be known as the pick-and-carry load limit for the forks attachment at the standard load centre distance.

Note that the standard load centre distance used in Australia for forks is 600mm for loads not exceeding 10,000kg.

When calculating the rated capacity, the telehandler must be capable of lifting the rated capacity from ground level and stacking it at height.

The rated capacity is one measure that can be used to compare telehandlers for job selection.

4.2 Types of telehandlers

There are basically two different types of telehandler.

Non-slewing

- A telehandler is classed as non-slewing if it is not capable of being slewed more than 5° to either side of the longitudinal axis of the truck.
- Design requirements for non-slewing telehandlers is contained in AS 10896.1.

Figure 3: Typical non-slewing telehandler

Figure 4: Typical slewing telehandler

Slewing

A telehandler is classed as slewing if it can be slewed more than 5° either side of the longitudinal axis of the telehandler. Commonly a slewing telehandler can be slewed through 360°.

Currently there is no specific design standard for slewing telehandlers in Australia, however the following standards should be used as guidance:

- AS 1418.5:2013 Cranes, hoists and winches Part 5: Mobile cranes (EN 13000:2010, MOD).
- ISO 10896-2 Rough-terrain trucks – Safety requirements and verification – Part 2: Slewing trucks.
- EN 1459-2 Rough-terrain trucks – Safety requirements and verification – Slewing trucks.

All slewing telehandlers are currently considered to be mobile cranes irrespective of the type of attachment fitted.

4.3 Stability

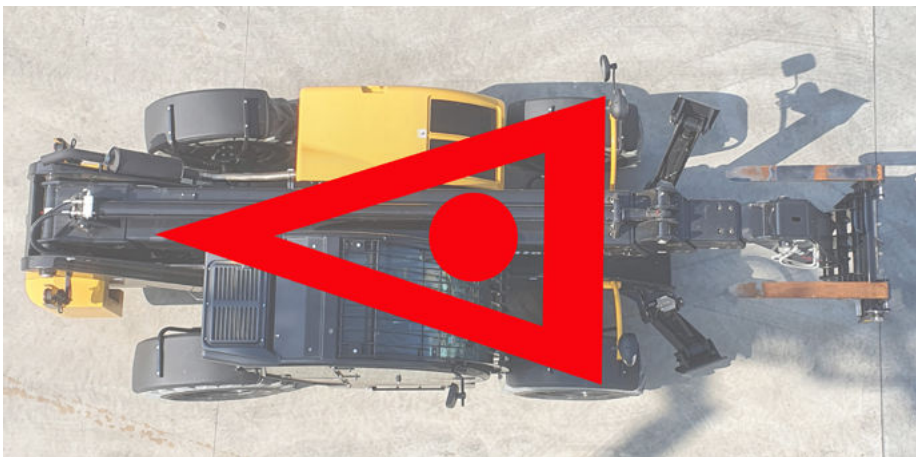
The principal of a telehandler stability works like a see-saw, where the load is balanced by the machine weight and the counterweight. The stability depends on the weight of the load and its distance from the machine.

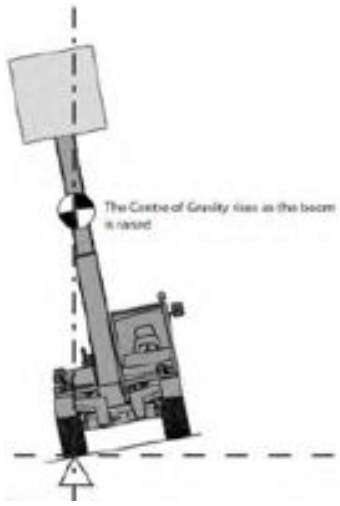
The stability of a telehandler can be described by as a zone – either a stability triangle (front axle to rear axle pivot) or a stability rectangle if a rear axle lock is activated (front axle to rear axle). To maintain stability the centre of gravity of the telehandler and its load (COG) must remain within the stability zone.

The area of the stability zone decreases as the boom/load is raised.

As the load is moved forward then the COG shift forwards, if the boom is raised the COG is shifted rearwards.

When the telehandler is on a slope the COG is shifted to the side and can be displaced outside of the stability zone.





It is important to consider the telehandler stability in three configurations – longitudinal (forwards stability), lateral (side stability) and rearward stability.

Longitudinal stability is the tendency to overturn forwards over the front wheels. An unstable event is typically caused by lifting an excessive load, the boom is extended too far for the load, travelling down a slope or a combination of these factors.

The tipping line is the front wheels or the outriggers if deployed.

Lateral stability is the tendency to overturn over the side wheels. An unstable event typically occurs on a side slope with the boom raised so that the load is vertically outside of the tipping line.

Movement of the load, especially hanging loads swaying from side to side, increases the risk of overturning laterally.

The tipping line is the front and rear wheels on one side, or the outriggers if deployed,

Rearward stability is the tendency to overturn backwards, over the rear wheels. Typically an unstable event will be a combination of lateral and rear instability. It can occur when the boom is raised and the telehandler is driven in reverse down a slope.

The tipping line is the rear wheels.

4.4 Visibility

Restricted visibility when the boom is raised or when large loads are carried, plus poor segregation have been identified as a major cause of accidents involving pedestrians and telehandlers. The operator's view around the machine, when seated in the normal operating position is obstructed by the cab pillars and any other part of the structure in the way. Certain parts of the loading cycle will place the boom and load in the operator's line of sight and consequently prevent a clear view of their surroundings.

It should not be forgotten that the most effective way of preventing accidents between pedestrians and telehandlers is to segregate vehicle and pedestrians.

Operators should always ensure, before commencing a task, that personnel are clear of the area immediately adjacent to the machine. This may involve getting out of the cab and walking around the machine.

The basic design of the telehandler will determine how much visibility the operator has of their surroundings. This includes the position of the boom; is it positioned low so that the operator can see over it or does it have a high pivot – which is typical of telehandlers in the US market – in which case the operator must raise the boom to enable them to see under.

Telehandlers are also fitted with a variety of visibility aids depending on the individual designs. These include: mirrors, reversing cameras, windows fitted with effective washers and wipers, window demisters and work lights (for night work).

Depending on the application, additional visibility aids may need to be considered.

4.5 Telehandler safety features

This section covers the minimum requirements for safety features outlined in AS 10896.1: Rough-terrain trucks – Safety requirements and verification - Part 1: Variable-reach trucks (ISO 10896.1:2012 MOD).

4.5.1 Indicators and warning systems

The indicating and limiting systems fitted to telehandlers depends largely on the attachments they are designed to be used with. There are, however, a couple of mandatory safety devices. These include: boom length and angle indicators (these can be mechanical or electronic), slope indicators, and longitudinal load moment indicators. In addition to these, the following may also be required (depending on the type of attachment fitted and the rated capacity): actual capacity indicator, load indicator, drum rotation indicator and hoisting limit indicator.

4.5.1.1 Boom length indicator

The boom length indicator (along with the boom angle indicator) enables the operator to determine the relative position of the load on the applicable load chart. Boom length is important for the operator to determine the actual capacity limit for a given boom configuration. Boom length indicators typically consist of a series of letters or numbers painted on the side of the boom, visible to the operator in the normal operating position (Figure 5). Alternatively an electronic boom length indicator may be incorporated in an electronic load management system, which provides the same information to the operator (Figure 6).

Figure 5: Typical boom length indicator (mechanical)

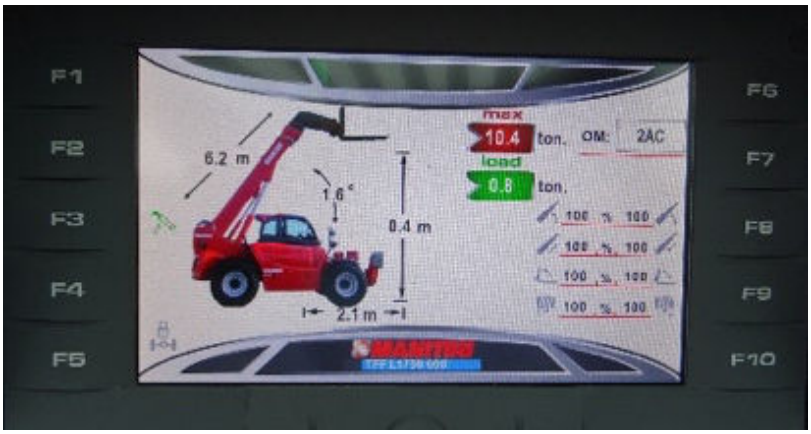


Figure 6: Typical boom length indicator (electronic)

4.5.1.2 Boom angle indicator

A boom angle indicator can be either mechanical (pendulum type device) or electronic (sensor and display). In conjunction with the boom length indicator, it enables the operator to determine the relative boom position. It must be installed where the operator can read it in the normal operating position (i.e. sitting in the seat). See Figure 7 for an example of a mechanical type.

Figure 7: Typical boom angle indicator (mechanical)

4.5.1.3 Slope indicators

Slope indicators must be fitted which indicate the chassis inclination of the telehandler both laterally (across the chassis) and longitudinally (along the chassis in line with the boom). Usually they are of the bubble type but may be electronic. See Figure 8.

Figure 8: Typical slope indicator

4.5.1.4 Longitudinal load movement indicator

The longitudinal load moment indicator or LLMI works by sensing the load upon the rear axle. The LLMI senses the change in load on the rear axle and at a preset point will provide the operator with an alarm.

Note that the telehandler is more likely to tip forward on a slope than when it is on flat ground.

The LLMI has the advantage of incorporating this changed axle load due to different longitudinal slopes so that the output signal is automatically adjusted.

The system has two drawbacks: it only senses tipping over the front and cannot prevent the telehandler from lifting excessive loads at high boom angles. Therefore it cannot control the risk of overturning due to lateral instability. Also, it only works when the telehandler is stationary, therefore it does not indicate longitudinal stability (or instability) while driving.

Figure 9: Typical longitudinal load moment indicator

4.5.1.5 Actual capacity indicator

The actual capacity indicator uses sensors to measure boom angle and length, some also measure chassis inclination. Using this information, the system can determine the given boom configuration and the load that can be lifted in accordance with the load chart. Feedback is provided to the operator via a display screen.

The system relies on the operator to choose the correct attachment from a selection of approved attachments, however some systems can automatically sense the attachment (automatic recognition system) once it is mechanically connected to the quick hitch therefore eliminating operator intervention.

The actual capacity indicator is a system (engineering control) which does what a competent operator can do when provided with the following information: load chart, boom length, boom angle, and chassis inclination. The actual capacity indicator (when provided with an actual capacity limiter) is an engineering control, while the operator reading and interpreting the load chart etc. is a management control. An engineering control is higher on the hierarchy of controls and therefore should be given greater weight when determining the appropriate risk control measure.

An actual capacity indicator is required to be provided on telehandlers designed to lift freely suspended loads which are greater than 3.0 tonne, it is optional for all other applications.

Figure 10: Typical actual capacity indicator

4.5.1.6 Load indicator

A load indicating system is usually provided with the actual capacity indicator, and when fitted with a device which cuts aggravating movements forms a load management system or actual capacity limiter. Although individual designs may differ the measurement of the load which is being lifted is achieved via the measurement of the load in the luff cylinder(s) and sometimes also in the compensating or tilt cylinder. Note that this device is an indicator only, it is not a “direct” measurement of the load which is being lifted and needs to be combined with additional information (boom length and angle, etc.) and an ECU which can “calculate” (within given tolerances) the load which is being lifted.

The accuracy of the system depends on the actual distance of the load centre. The calculation assumes the load centre distance, typically the Australian standard of 600mm (up to 10T). Note that the Europe standard is 500mm so load charts and load indicators need to be adjusted for use in Australia.

If the actual load position varies from the assumed position the accuracy of the system is compromised.

A load indicator must be provided on telehandlers designed to lift freely suspended loads which are greater than 3.0 tonne. It is optional for all other applications.

4.5.1.7 Audible warning device

All telehandlers must be fitted with a horn. The A-weighted sound pressure level must be more than 93dB.

4.5.2 Limiting devices

Limiting devices prevent further aggravating motions of the load once an operating limit has been reached.

Tilting, crowding or telescoping-in are not considered to be an aggravating motion. These movements may remain active providing the operator with a quick method of reinstating normal operation.

When using a bucket attachment there can be additional “tear-out” forces which occur when scooping earth or other material out of a pile. To allow for these momentary forces the Limiting Device may define a specific zone where the limiter will not automatically cut motion. The “bucketing zone” is restricted to maximum boom angle of 10° and maximum boom extension of 1.0m.

4.5.2.1 Longitudinal moment control

When an LLMI is linked to a control device which blocks further destabilising motion it is called a longitudinal load moment control (LLMC) system. It is required to be fitted to all telehandlers unless an actual capacity limiter system is fitted.

4.5.2.3 Rated capacity limiter

The rated capacity limiter is designed to prevent the telehandler or attachment from lifting more than 110 per cent of the rated capacity.

This can be a telehandler rated capacity limiter or an attachment rated capacity limiter.

4.5.2.4 Actual capacity limiter

The actual capacity limiter is designed to prevent lifting loads greater than the capacity at the different load positions. It combines with an actual capacity Indicator and references the varying limits on the load chart.

4.5.2.5 Hoisting limiter

For telehandlers fitted with a rope hoist attachment, a limiter is required to prevent collision of the hoist block and the boom tip. This is called anti two-blocking.

The hoisting limiter is designed to prevent the wire rope from being over stretched when it is either fully wound up or if the telescopic boom is extended with insufficient rope between the hook and winch drum or sheaves.

4.5.2.6 Load management system

Typically a load management system incorporates an actual capacity indicator, an attachment rated capacity limiter and an actual capacity limiter.

4.5.3 Chassis levelling

Chassis levelling which may also be referred to as “frame sway”, is a system which can be used to level the chassis of the telehandler while on sloped ground.

4.5.4 Axle lock out

Locking the rear axle prevents the rear axle from pivoting in the centre. It is usually an automatic system which activates when the booms are raised approximately 40° (this may vary depending on the make/model of telehandler). The stability “footprint” of the telehandler changes from a triangle to a rectangle and assists the stability of the telehandler when situated on side and rear slopes.

4.5.5 Guards

Guards must be provided to protect personnel from thermal and mechanical hazards e.g. sharp, hot or moving parts.

4.5.6 Brakes

- Brakes on telehandlers must be designed to fail safe.
- All safety signage must be in English and readable.
- Local road regulations may also apply when telehandlers are used on roads.
- A warning must be provided to alert the driver if they leave the seat if the parking brake is not applied.

4.5.7 Hydraulic systems

- Hydraulic systems must be designed so the load will not freefall if a hose or fitting fails.
- All hydraulic systems must have pressure relief valves and oil filters.

4.6 Controls

Controls differ across the various makes and models of telehandlers. It is critical that the operator is familiarised with the controls and corresponding movements. There may be different control movements (or the operator must know the control movement) to lower and raise the boom, tilt/crowd the attachment and extend the telescoping boom.

Detailed requirements for controls are found in AS 10896.1:2019 Rough-terrain trucks – Safety requirements and verification – Part 1: Variable-reach trucks (ISO 10896.1:2012, MOD).

- Controls must be easy to access from the normal operating position, i.e. the driver's seat.
- The telehandler must only move when the controls are activated. Controls must automatically return to 'off' or 'neutral' when released and be protected to prevent someone accidentally knocking them.
- The operator must be safe from moving parts when using the controls.
- Controls must be strong enough to stand up to normal use.
- Means must be provided to prevent the operation of controls when standing on the ground next to the cab. These means could include a guard or an interlock device.
- An emergency-stop control should be fitted which stops all movement or the engine when pressed.
- Telehandlers typically have multiple steering modes (two-wheel steer, four-wheel steer, crab steer)

4.6.1 Direction of movement

All controls must have words or symbols that show the function and direction of the telehandlers movements. Controls must be protected against faults that could cause the telehandler to move in a direction other than that selected by the operator.

4.6.2 Emergency stops

Every control position should have a red emergency-stop control, in accordance with the requirements of AS 4024.1604, Safety of Machinery – Design of Controls, Interlocks and Guarding – Emergency Stop – Principles for Design.

4.6.3 Protection against unauthorised use

A lockable switch, keypad or other device must be provided to protect against unauthorised use.

4.7 Instructions

- Labels in the form of symbols or clear English must clearly list everything the controls do and show the direction of movement. All controls should be labelled, indicating their function.
- The operators manual must be in English and stored in a weather-proof container or in the cabin if fully enclosed.
- Warning notices alerting personnel to potential hazards must be fitted as necessary.

4.8 Attachments

Telehandlers can be fitted with a wide variety of attachments. Some of these are industry specific, but most are used in all applications. Attachments can be categorised in the following three categories: as fixed load, suspended load or as non-load handling.

It is the responsibility of the telehandler manufacturer to specify the attachments which can be used with the telehandler.

4.8.1 Fixed load attachments

A fixed load is one which generally does not move relative to its the attachment.

Fixed load attachments include:

- Fork carriages.
- Side shift forks.
- Fork extensions.
- Buckets for handling earth, rocks, grain or other loose bulk material.
- Hay bale spikes.
- Block grabs.
- Round bale handlers.
- Rotators (usually combined with the fork carriage).
- Drum clamp.

4.8.2 Freely suspended load attachments

A load which is suspended from a point which is free to rotate, and does not prevent lateral movement of the load is what is commonly referred to as a “freely suspended” load. Only attachments designed to handle freely suspended loads are permitted to be used on telehandlers.

Do not use forks and chains/slings to lift loads.

Freely suspended load attachments include:

- Crane hooks.
- Jibs (fixed or extendible).
- Winches and Hoists.
- Attachment points fixed to the boom (if designed for this purpose).

See Section 7 for more information on freely suspended loads.

4.8.3 Non-load-handling attachments

Non-load-handling attachments include devices such as sweepers and hedge trimmers.

4.9 Load charts

A load chart provides the operator with information on what loads can be safely handled for each boom position. An Australian compliant load chart also requires the following:

- Telehandler model.
- Attachment model.
- Slope limits for stationary operation and travelling with a load.
- Ground conditions for operation.
- Tyre specifications including size, tyre pressure, mass if applicable, type.
- Load centre distance (for attachments that do not have a fixed load attachment point).
- Configuration for telehandler when travelling with a load, i.e. load 300mm above ground, boom fully retracted.

Alternatively some information may be permanently displayed at the operator position, e.g. on a decal.

An operator must not operate a telehandler and attachment combination without the correct load chart. The load chart must apply to the specific telehandler model and attachment model.

The telehandler manufacturer supplies attachments which are approved for use, in this case the manufacturer will conduct the stability testing and then develop the load chart. All load charts for telehandlers are developed by testing, either with the specific attachment or developed using test data from similar attachments. Third party attachment manufacturers also supply attachments in Australia and must also supply a load chart suitable for the attachment.

Do not purchase an attachment if the supplier does not provide the relevant load chart. The use of an attachment on the telehandler must be approved by the manufacturer of the telehandler or a Competent Person.

4.10 Marking documentation and records

4.10.1 Telehandler marking

The following are minimum requirements for markings, labels, signage, documentation and records of maintenance and inspection for telehandlers.

1. A serial plate with the following information in permanent lettering (Figure 11);
    - Make, model, serial number, and manufacturer's name and address.
    - Date of manufacture and, if different, commissioning date.
    - Design standard.
    - Rated capacity.
    - Telehandler mass (with a full tank of fuel).

Figure 11: Manufacturer's serial plate

2. Special warnings, cautions or restrictions needed to use the telehandler safely.
3. The load chart for each configuration must be provided, such as:
    - Different attachments.
    - Outrigger/stabiliser settings.
4. Manuals: Manufacturers or importers that are suppliers or agents for imported telehandlers (new or second-hand) must provide an operators manual and maintenance manual (or a combined manual) in English, to customers. If the telehandler was designed and manufactured to an international standard it must have manuals available in English, certified or produced by the manufacturer. The manual must include the following:
    - Full operating instructions.
    - Approved attachments.
    - Warnings and restrictions on the use of the machine.
    - Advice on any matter that could affect the safe use of the machine.
    - Lubrication schedule.
    - Routine checks.
    - Information on how to lift the machine and secure onto a transport vehicle.
5. Essential operating instructions must be permanently displayed or stored in an obvious place on the telehandler.
6. Owners must keep continuous working records and maintenance records for the telehandler in line with Section 6.6 of AS 2550.19 Cranes, Hoists and Winches – Safe Use – Telescopic handlers. This information should also be in the telehandlers logbook, see Section 8.

4.10.2 Attachment marking

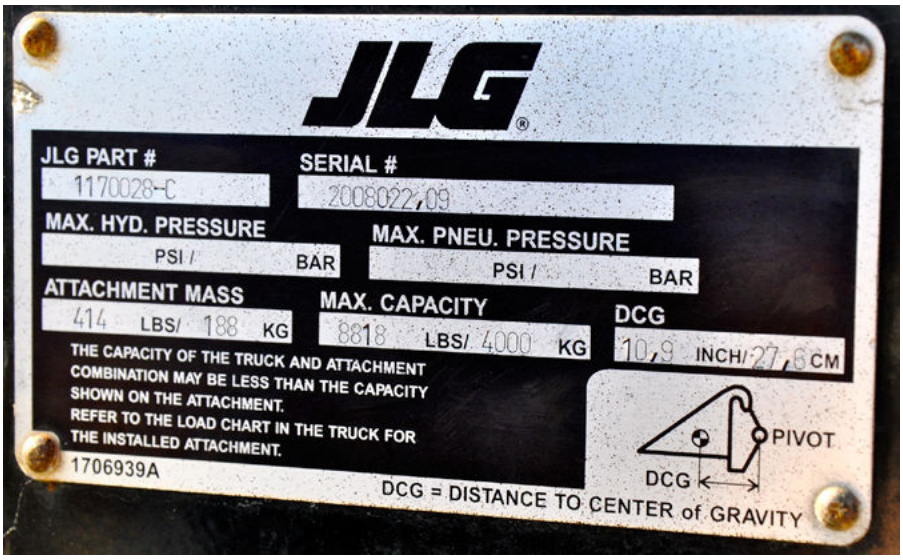


Figure 12: Attachment serial plate

All attachments must have:

1. A serial plate with the following information (Figure 12):
    - Make, model, serial number, and manufacturer's name and address.
    - Year of construction.
    - Rated capacity.
    - Load centre distance (for fork attachments or attachments with variable extensions).
    - Mass in kilograms.
    - Centre of gravity position.
    - Lost load centre (if applicable).
    - Volumetric capacity in m^3 (if applicable).
    - Maximum hydraulic operating pressure in MPa (if applicable).
    - A warning that the rated capacity of the attachment may be reduced and to refer to the load chart for the truck/attachment combination.
2. Manuals: Including operating instructions, instructions on the correct procedure for connecting the attachment to the telehandler, maintenance and inspection criteria.

5. Transporting telehandlers

5.1 Transporting telehandlers

5.2 Getting ready to transport

5.3 Method of loading telehandlers

5.4 Method of unloading telehandlers

5. Transporting telehandlers

5.1 Transporting telehandlers

Accidents and injuries can happen when getting telehandlers to and from sites. Health and safety planning should cover the hazards of moving machinery to and from sites.

Everyone involved in the transport supply chain has obligations under Heavy Vehicle National Law (HVNL) to ensure the safety of their transport activities. A person may be a party in the supply chain in more than one way and legal liability can apply to their actions, inactions and demands.

The HRIA provide two training programs focusing on the transportation of hired plant and equipment – the Face-to face Chain of Responsibility and Load Restraint Training course and the Chain of Responsibility Online Awareness Course.

Chain of Responsibility checklist

Transport operators must be competent to drive the telehandler when loading and unloading from a truck. Always read, understand and follow the manufacturer's instructions for loading and unloading the telehandler and the tie-down and lifting procedures.

Serious accidents have occurred during loading and unloading – when driving onto or off a truck or float. A method of risk control is to have a safety observer to assist in guiding the telehandler.

5.2 Getting ready to transport

Complete a hazard assessment of the site and decide the best method for loading the telehandler.

- Remove all loose items, tools and equipment.
- Check and secure all engine and access covers, ensure battery box trays and doors are secure. Secure tool bin lids.
- Ensure turntable lock pins are engaged on slewing telehandlers, if applicable.

5.3 Method of loading telehandlers

- Park the truck safely and legally. Apply the parking brakes.
- Before loading the telehandler, do a full hazard assessment to identify any soft or uneven ground, holes and trenches near the vehicle, overhead power lines, sufficient lighting, traffic and public access.
- Make sure the operator is wearing the right PPE, such as high-visibility gear.
- Put hazard control measures in place where needed, such as flashing lights, marker cones and traffic management.
- Check how steep an angle the telehandler can negotiate to decide how to load it.
- Where more than one machine is loaded, consider loading methods, weight distribution and restraint methods.
- Follow safe operating procedures for loading, such as positioning the telehandler ready to load, drive on and secure.
- Once the telehandler is on the truck, secure it with strops, chains and load restraints (using the designated tie-down points). Follow the manufacturer's specifications. Do not use webbing straps and never rely on the winch rope as a means of securing the telehandler.
- When loading a slide bed, have chains in place. Pre-tensioning them is optional while lifting the tray.
- Once the tray is packed up and/or the ramps are lifted, secure the telehandler using pretension chains with load binders.
- Check the weight, height and width of the load so the maximum rated capacity and dimensions of the transport vehicle are not exceeded.

National Transport Commission's load restraint guide

Do one final check of the load area, truck, load, chains, binders and dogs and straps before leaving.

5.4 Method of unloading telehandlers

- Park the truck safely and legally.
- On arrival, check the drop-off area and conditions for hazards (such as wet or dry ground conditions, overhead power lines, sufficient lighting, traffic, people, uneven ground).
- Make sure the operator is wearing the right PPE, such as high-visibility gear.
- Put hazard control measures in place, such as flashing lights, marker cones and traffic control.
- When unloading alongside a road make sure that it is segregated from traffic.
- Ensure that working areas are well lit.
- Release the chains and twitches and remove rear chains. If driving the telehandler off the truck to unload, leave the front chain for safety. Only remove the chain once the tray is tilted. If using a winch, pre-tension the cable before tilting the tray.
- Tilt or lower the tray or ramps safely.
- Drive the telehandler to a safe place then park and secure it. Remove the key to prevent unauthorised use.
- Once the truck is packed up and the ramps are lifted and secure, make a final check of the unloading area and truck before it leaves the site. Make sure chains, twitches, straps and truck outriggers have been packed and stowed away.

6. Fixed loads

6.1 General operations (fixed)

6.2 Stacking

6.3 Safety override

6.4 Travelling with fixed loads

6. Fixed loads

6.1 General operations (fixed)

Safe driving and operating techniques will vary depending on:

- The load to be lifted and the attachment used.
- The time of day or night and the visibility.
- Ground conditions such as uneven, wet or unstable ground.
- Site hazards.
- Weather conditions, including high wind.

Use exclusion zones and/or barriers to separate the telehandler work area from people and vehicles.

Lifting should always be conducted on level ground or with the chassis levelled laterally using a chassis-levelling system.

Avoid soft ground and sloping surfaces if possible or use more packing to stabilise the telehandler.

Never deploy or reset the outriggers/stabilisers while the boom is elevated with a load – this can cause major instability.

Make sure all movements are controlled and smooth – lifting, lowering, driving, turning and braking.

Don't try to move or lift the load too fast, especially when extending or lifting the boom.

6.2 Stacking

Pick and place loads with the boom fully retracted. Note that this may not be possible due to poor ground conditions or obstacles.

Space forks to suit the load to be shifted, with the centre of gravity halfway between the forks.

Make sure the fork tines are locked or clamped before moving the load. Make sure the load is full supported before lifting.

Always monitor the load during the entire operation, taking the time to confirm the load is supported and secure on the forks.

Take care not to contact external structures or objects with the load or forks as this may dislodge the load and cause objects to fall.

Place load slowly on the ground or landing area and withdraw forks slowly so it does not 'catch' on the load and drag it.

Check the load bearing limits of any surface if you are unsure if it will support the load.

Seek advice from a Competent Person if needed.

6.3 Safety override

The safety override is typically a spring-loaded switch or key. It requires a deliberate action by the telehandler operator. The override allows the boom to be moved when the capacity limit has been reached, so that the operator can bring the load within the safe operating parameters of the machine.

Only use the override after first re-assessing the situation and confirming that it is safe to proceed.

Do not lower the boom first in override mode as this increases the risk of tipping forwards.

6.4 Travelling with fixed loads

When travelling (or driving) the boom should be kept in the lowered position with the load 300mm to 500mm above the ground. For rough terrain it may be necessary to position the load higher to avoid obstacles; in this case the travel speed should be reduced.

Raising the boom effectively raises the height of the centre of gravity (COG) of the telehandler and can make the telehandler more likely to overturn, especially on lateral slopes.

The following points should be adhered to:

- Fully retract the boom extension before moving.
- The boom and load should be kept as low as possible – try to keep the load no more than 300mm above the ground. The load chart will state the boom configuration limits for the pick-and-carry position.
- Travel speed should never exceed a slow walking pace and be suitable for the conditions. The actual travel speed will depend largely on the type of terrain which is being traversed, for rougher terrain the travel speed may need to be much lower.
- Avoid sudden turns, particularly on side slopes.
- Braking should be smooth. Avoid sudden braking.
- Avoid reversing down slopes. Never reverse down a slope with the boom elevated.
- Always follow the manufacturer's instructions for travelling on slopes and inclines. Do not attempt to climb, descend or cross slopes in excess of the manufacturer's limits, as this significantly increases the likelihood of overturning.
- Note that visibility may be reduced when travelling with bulky or loads with a large area. Appropriate control measures should be used such as Safety observers. If a Safety observer is used take care that they do not walk in front or close to the telehandler or the load in case it tips.
- The operator must be able to see the safety observer at all times.
- If you cannot see the safety observer then stop immediately.
- Maximum care must be taken to avoid overhead obstructions including power lines. See Section 2.5.9.

7. Freely suspended loads

7.1 Lifting suspended loads

7.2 Travelling with suspended loads

7.3 Lifting roof trusses

7. Freely suspended loads

7.1 Lifting suspended loads

Suspended loads should never be attached to chains or slings over the forks or carriage. Only a properly designed, tested and thoroughly inspected lifting attachment or lifting point are to be used to support a suspended load. Although fork-mounted hook attachments are common in other markets they should not be used where a jib attachment or lifting point is available.

Lifting should always be conducted on level ground or with the chassis levelled laterally using a chassis levelling system. Boom movement should always be done smoothly to avoid swinging of the load. If the load does start to swing, slowly reduce the boom speed until it stops. This may mean momentarily stopping altogether until all load movement stops, and then starting again very slowly.

Never use forks or the fork carriage to lift a freely suspended load. Only use attachments designed for suspended loads.

7.2 Travelling with suspended loads

Travelling (or driving) with a suspended load requires travelling with the boom raised above the normal transport position. This has the effect of raising the height of the centre of gravity (COG) of the telehandler and can make the telehandler more likely to overturn, especially on lateral slopes.

In addition, the load will have a tendency to “swing” causing additional dynamic side loads which will Increase the risk of overturning the telehandler.

The following points should be adhered to:

- The boom and load should be kept as low as possible, try and keep the load no more than 300mm above the ground. The load chart will contain the boom configuration limits for the pick-and-carry position. The correct length of chains, slings etc. should be selected.
- Boom extension should not exceed the pick-and-carry configuration limits as contained on the load chart, however caution should be exercised to prevent collision between the load and the front of the telehandler.
- Travel speed should never exceed a slow walking pace and be suitable for the conditions. The actual travel speed will depend largely on the type of terrain which is being traversed – for rough terrain the travel speed may need to be much lower.
- Avoid sudden turns, particularly on side slopes.
- Braking should be smooth. Avoid sudden braking.
- Avoid reversing down slopes. Never reverse down a slope with the boom elevated.
- Always follow the manufacturer’s instructions for travelling on slopes and inclines. Do not attempt to climb, descend or cross slopes in excess of the manufacturer’s limits, as this significantly increases the likelihood of overturning.

- Note that visibility may be reduced when travelling with bulky loads or loads with a large area. Appropriate control measures should be used such as safety observers. If a safety observer is used, take care that they do not walk in front or close to the telehandler or the load in case it tips.
- Maximum care must be taken to avoid overhead obstructions including power lines. See Section 2.5.9.

7.3 Lifting roof trusses

Roof trusses are relatively light but wide. This causes large dynamic forces when lifting the truss.

Roof trusses are also significantly affected by wind so need to be handled with care.

Always use attachments specifically designed for handling roof-trusses.

Figure 13: Roof-truss jib

7.3.1 Design requirements

Only use telehandlers which are designed to handle freely suspended loads. Two categories of telehandler designs are used in Australia for lifting freely suspended loads and are based on the maximum load the telehandler can lift: 3.0 tonnes and less, and greater than 3.0 tonnes.

Mandatory for telehandlers with a rated capacity over 3.0 tonnes and a freely suspended load attachment, and recommended for all telehandlers are:

- An actual capacity indicator and limiter.
- A load indicator.

For telehandlers with a rated capacity of 3.0 tonnes or less and a freely suspended load attachment the minimum requirements are:

- Longitudinal load moment indicator (LLMI) and longitudinal load moment control (LLMC), and
- Attachment rated capacity limiter.

Note that the attachment capacity limiter can be omitted when the structural capacity of the attachment and/or lifting point exceeds the rated capacity of the telehandler.

7.3.2 Load charts

Specific load charts are required for the telehandler fitted with a lifting point or lifting attachment. These load charts are developed using specific load factors for stability tests which differ from those of fixed load attachments and cannot simply be deduced from a forks load chart.

Only use load lifting attachments that have load charts specific to Australian Standards AS 10896.1 or AS1418.19.

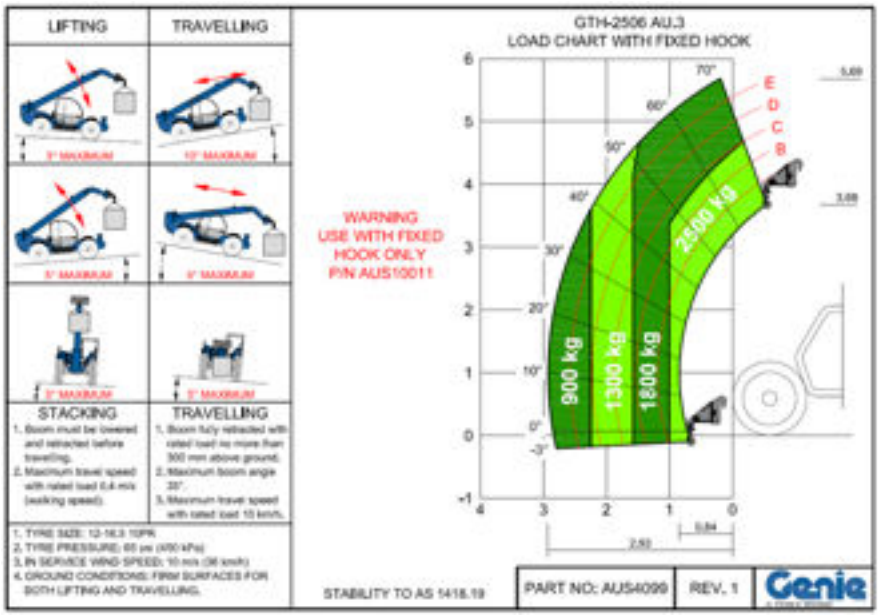


Figure 14: Fixed Hook Load Chart

8. Maintenance and inspection

8.1 Records

8.2 Maintenance

8.3 Inspection

8.4 Repairs

8. Maintenance and inspection

People maintaining telehandlers must have access to the current versions of the following standards: AS 2550.19 and AS 10896.1.

The effective maintenance of a telehandler is an essential part of safe operation. As with all machines, a telehandler wears, deteriorates and can suffer damage over time through normal use. Requirements for the maintenance and inspection of telehandlers is covered in detail in this section.

The telehandler logbook and register is a record of pre-operation inspections and routine inspections. It must also record any maintenance. The logbook and register must be kept with the telehandler and be readily available for inspection.

8.1 Records

The telehandler owner must keep all records in the way described in Section 6.6 of AS 2550.19.

At a minimum, keep a summary of the following in the logbook:

- Daily pre-operation reports for at least the last 14 days of operation, or since the last 90-day inspection.
- For telehandlers subject to hire, a summary statement of the pre-hire (run-up) inspection.
- A summary statement of the last routine (90-day) inspection.
- A summary statement of the last major inspection (if applicable).
- Action taken or repairs carried out to fix faults or damaged parts.

The owner must have available documentation stating the telehandler has been inspected by a Competent Person (including their identity and qualifications) and is safe to use. The owner must record all checks, adjustments, replacement of parts, repairs and inspections done and all irregularities or damage affecting the machine's safe use.

Records must be kept to show that the telehandler meets all maintenance requirements.

AS 2550.19 requires that telehandlers without continuous working and maintenance records need a major inspection. Any external service provider working on telehandlers should also keep records of work they have undertaken.

8.2 Maintenance

Use the telehandler manufacturer's approved maintenance manual (or a certified translation) for all maintenance. A Competent Person must complete all elements of the manufacturer's prescribed maintenance schedule. Latest editions of manuals are available from the manufacturer.

If there is no manual, follow the inspection and maintenance schedules outlined in AS 2550.19: Cranes, Hoists and Winches – Safe Use – Telescopic handlers.

Establish a preventive maintenance program, based on the working environment, how often the telehandler is used and the severity of conditions in which it is used.

When replacing parts use identical or equivalent parts for the specific type of telehandler. To determine if a replacement part is suitable then consideration should be given to the stability and safety of the telehandler for all operations.

If a fault with a telehandler develops, repair it with advice from the manufacturer. Correct any safety related faults before using the telehandler again.

8.3 Inspection

All inspections must be performed by a Competent Person. When inspecting with the boom raised always ensure that the safety prop is installed to prevent the boom unexpectedly dropping down.

Figure 15: Always install the safety prop when working under the booms

8.3.1 Pre-operation inspection

The operator must give the telehandler a visual inspection and functional test before using it. This is called a pre-operation operator safety check. The checks should include the items listed in the operators manual, the logbook and in the table in Section 11.4.

The visual inspection should confirm that:

- The part is not missing, damaged, cracked or broken.
- There is no obstruction and the part is accessible.
- All instructions and decals are clear and legible.

Component	Visual inspection	Functional test
Controls		
Emergency controls		
Quick-hitch attachment		
Load charts		
Visual and audible alarms		
Personal protective equipment		
Air, hydraulic and fuel system leaks		
Cables and wiring harness for security and damage		
Loose and missing parts		
Brakes		
Tyres, wheels		
Placards, labels, warnings, control markings and operators manuals are on the telehandler		
Outriggers, stabilisers		
Cabin doors, windows and FOPS/ROPS		
Seats and seatbelts		
Safety switches and interlocks		
Structural defects or damage		
Correct operation of drive and speed functions, including speed-limiting devices		

Inspection does not mean ticking boxes in a checklist. It means actually inspecting the telehandler using the checklist and following the manufacturer's recommendations.

8.3.2 Pre-operation inspections of lifting attachments

Prior to each use or shift, lifting devices must be visually inspected to ensure the device is free of any significant damage or wear and markings are legible. If any defects are detected, the lifting device is to be withdrawn from service and a thorough inspection undertaken by a Competent Person. All defects are to be rectified prior to placing it back in service.

8.3.3 Routine inspection

The owner, hirer and supplier must do routine inspections on the telehandler at least every 90 days (as described in Section 6.4.3 of AS 2550.19: Cranes, Hoists and Winches – Safe Use – Telescopic handlers). If the telehandler is for hire, then a safety inspection between hires should be completed.

A Competent Person must complete all routine inspection and maintenance, based on the severity of use of the telehandler, and as recommended by the manufacturer.

The inspection procedure should include a check that the logbook is up to date, the operators manual is accessible and applicable to the telehandler. Both must be kept with the telehandler. A written report must be provided after the inspection. Do not use the telehandler until any safety-related faults are fixed.

For full inspection requirements refer to the manufacturer's operators manual.

Examples of items an inspection should cover are:

- All functions and controls for speed, smoothness of operation and limits of motion.
- All emergency and safety devices, including interlocks.
- Controls.
- All chain and cable mechanisms for adjustment, wear and damage.
- Lubrication of all moving parts, inspection of filter elements and fluid levels.
- The safety prop and other safety devices are in satisfactory condition and securely stored
- Visual inspection of boom, structural members and welds.
- Corrosion (rust).
- Visual inspection (and measurements as necessary) of critical component parts, such as brakes, gears, fasteners, pins, shafts, wire ropes, sheaves, locking devices, all guardrails and guarding, all attachments and connections, electrical contractors and all other equipment.
- Signage, including warning signs, decals and control markings.
- Wear on tyres and damage to wheel rims.

Guidance document on tyre degradation

8.3.3.1 Tyre replacement

Only use tyres which are approved by the telehandler manufacturer for use on the specific model.

Guidance is provided in the manufacturer's operators manual/instructions and on the load charts.

Never mix tyres of different make, size, or wear levels as this may affect the telehandler stability.

If recommended tyres are unavailable, seek instruction from the telehandler manufacturer for suitable alternatives.

8.3.4 Routine inspection of lifting attachments

Periodic inspections are required on lifting devices, the intervals are specified by (in order of importance):

- The attachment manufacturer; or
- A Competent Person; or
- A period not greater than 6 months.

When determining the interval due consideration will be given to the working environment, frequency of use, and the manner in which the device is used.

Inspections must be conducted in accordance with the following:

- Inspections must be undertaken in an adequately lit location;
- The lifting device must be thoroughly cleaned prior to inspection;
- Any wearing components (e.g. hooks) must be measured to determine the degree of wear, which must not exceed permitted limits. Wear may be tolerated if the section has not been reduced by more than 10 per cent of the nominal section in any plane;
- All components must be inspected for signs of wear, nicks, cracks, gouging, stretching or distortion.

Non-destructive examination techniques which should be used include:

- Visual.
- Magnetic particle.
- Liquid penetrant.

A record of inspection must be provided and maintained for each lifting device (attachment) and must include the following minimum information:

- Model number.
- Serial number.
- Date of inspection.
- Method and details of the inspection.
- Results.
- Any recommendations.

8.3.5 Enhanced periodic inspections

After five years and before 10 years the telehandler must have all critical parts inspected and tested, where appropriate, as stated in AS 2550.19: Cranes, Hoists and Winches – Safe Use – Telescopic handlers. These enhanced periodic inspections must be done in line with the manufacturer's inspection program.

By the time the telehandler has been in service for 10 years, it either must have completed its enhanced periodic inspections or been subject to a major inspection.

Without these inspections the telehandler cannot stay in service.

This regime can be changed with instructions from the manufacturer that meet the criteria in Appendix C of AS 2550.19 and where an enhanced periodic inspection regime has been implemented.

8.3.6 Major inspections

Major inspections and the related maintenance are described in Section 6.4.5 of AS 2550.19. The following telehandlers need a major inspection, unless they have already had an enhanced periodic inspection (as described in Section 6.4.4.2 of AS 2550.19):

- A telehandler that has been in use for 10 years without an enhanced periodic inspection
- A telehandler that is being re-commissioned or imported, whatever age, that does not have continuous working and maintenance records, as required by Section 6.6 of AS 2550.19
- A telehandler that has been in use for five years since its 10-year major inspection.

Seek guidance from the manufacturer before starting a major inspection and keep evidence of this request with the telehandler's records. This must include advice on any safety or engineering upgrades and safety bulletins.

AS 2550.19 states a major inspection involves examination of critical components as identified by the manufacturer or a Competent Person. Where necessary, strip down the telehandler and remove paint, grease and corrosion from critical components to allow a complete and thorough inspection.

A component is critical if its failure would risk the health and safety of people using or near the telehandler. A Competent Person should identify the critical components using the definition in AS 2550.19.

"Where necessary" means if needed to make sure the critical component can be thoroughly inspected.

A complete and thorough inspection means looking at each part, and doing other non-destructive tests as needed.

Guidance document on major inspections

8.4 Repairs

Carry out all repairs in a way that ensures the telehandler meets the current specifications for the particular model and meets the criteria in AS 2550.19: Cranes, Hoists and Winches – Safe Use – Telescopic handlers.

Seek the manufacturer's advice for all critical repairs, including welding, on the correct repair procedure. Keep proof of this request with the telehandlers records. Do all repairs in accordance with the manufacturer's instructions and the telehandler's operators manual. Modern structural materials have specialised repair procedures. Some parts cannot be repaired and must be replaced instead.

Qualified welders must do all welding repairs on a telehandler and a qualified and Competent Person must inspect the welds.

Where the manufacturer's advice is not available, a Competent Person should sign off the repair work.

Manufacturer's spare parts should be used. The manufacturer must approve the use of any non-manufacturer structural components unless the manufacturer no longer exists, in which case a Competent Person must approve the component. Keep the verification reports on record.

8.4.1 Repairs to lifting attachments

Any part of a lifting device that becomes worn beyond serviceability limits or damaged as to constitute a hazard or impairs the operation of the lifting device, shall be repaired or replaced. All repairs are to be conducted by a Competent Person and must be documented.

9. Operator training requirements

9.1 General training

9.2 Freely suspended load training

9.3 High-risk work licence (HRWL)

9.4 Operator competency

9.5 Trainer requirements

9.6 Familiarisation

9.7 Refresher training

9. Operator training requirements

An employer or principal, who tells someone to use a telehandler, must make sure that the operator is adequately trained by a Competent Person and can demonstrate their competency before using the machine.

The operator must get training on the type of telehandler they will be using. The operator must be supervised during the training period until the person is considered competent to operate the telehandler.

The TSHA Gold Card is a competency-based training course that covers the safe use of telehandlers and the risks involved.

Information sheet on the TSHA Gold Card course

9.1 General training

The telehandler operator training should cover at least:

- Legal requirements.
- Getting to know the operators manual.
- Hazard management – identifying, assessing and controlling hazards.
- Equipment and safety features.
- Prestart (pre-operational) inspection.
- Control functions and positions.
- Limits of the machine – for example rated capacity, load charts.
- Moving and positioning.
- Transporting – including loading and unloading (where required).
- Working near overhead power lines.
- Refuelling and battery charging.
- Reporting problems and incidents.
- Emergency retrieval systems.
- Emergency rescue plan.

9.2 Freely suspended load training

The TSHA Gold Card has an optional module that covers freely suspended load attachments. Completion of this module is indicated with a J on the reverse side of the Gold Card.

9.3 High-risk work licence (HRWL)

All operators of telehandlers designed and equipped to handle freely suspended loads greater than 3.0 tonnes must hold a High-Risk Work Licence (CN Class).

TSHA licensing requirements

9.4 Operator competency

For the purposes of operating a telehandler, a competent operator is someone who has achieved and demonstrated competency in the safe use of a particular type of telehandler.

The TSHA Gold Card training includes a competency assessment.

One means of demonstrating competency is through completing industry training that allows for a Statement of Attainment (SoA) to be issued for a Unit of Competency (UoC) for Nationally Recognised Training. e.g. TSHA Gold Card which can be issued with an SoA for the RIIHAN301F Operate telehandler which is a Nationally Recognised Training Unit of Competency (UoC) under ASQA.

Any course must cover the requirements of AS 2550.19: Cranes, Hoists and Winches - Safe Use – Telescopic handlers and course providers should be able to offer evidence of this. Competency should also be assessed through supervision during the use of the equipment.

A telehandler operator must also be able to demonstrate that they have the knowledge and skills needed to do effective hazard and risk assessment in their operating location. Operators must be supervised until they are judged to be competent.

9.5 Trainer requirements

The person who delivers telehandler operator training should be competent with relevant machine and training experience.

This includes any on-the-job training.

The TSHA offers Gold Card courses through TSHA Accredited Trainers. TSHA Accredited Trainers are competent telehandler operators who not only meet the formal training and education requirements for the Vocational Education and Training (VET) sector but also possess significant industry experience.

9.6 Familiarisation

Employers or principals are also responsible for making sure operators are familiar with each type and model of the telehandler that they will use.

Familiarisation is the demonstration of the machines control functions and safety devices to a trained operator. The familiarisation must be carried out by a trained operator/trainer – who has adequate knowledge of that particular machine.

They need to check that the operator:

- Has made sure the correct manuals are kept on the telehandler.
- Understands the manuals and refers to them as needed.
- Understands how to read and interpret load charts.
- Knows the purpose of all controls and what they do.
- Knows what safety devices are installed and the operating differences of that particular model.
- Knows how to use the telehandler's emergency systems.

9.7 Refresher training

Operators need regular refresher training that covers the requirements of these guidelines. The length between training sessions should not exceed five years.

10. Acts, regulations and codes of practice

10.1 Legal framework

10.2 The Work Health and Safety Act

10.3 The WHS regulations

10.4 Codes of practice

10.5 Employers or business

10.6 Directors and officers

10.7 Workers

10. Acts, regulations and codes of practice

10.1 Legal framework

The Work Health and Safety (WHS) Act is supported by Regulations and approved codes of practice. Everyone must obey the WHS Act and its Regulations or equivalent legislation.

Any reference to WHS legislation should be taken as referring to the WHS or OHS legislation applicable for each relevant state or territory. A full list of applicable legislation is contained in Section 11.

10.2 The Work Health and Safety Act

10.2.1 Objective of the Act

The WHS Act sets the general requirements for managing a safe work environment.

The aim is to:

1. Protect workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work or from specified types of substances or plant.
2. Facilitate fair and effective workplace representation, consultation and co-operation.
3. Encourage unions and employer organisations to take a constructive role in promoting improvements in work health and safety practices.
4. Promote the provision of advice, information, education and training.
5. Secure compliance with the Act.
6. Ensure appropriate scrutiny of actions taken by persons exercising powers and performing functions under the Act.
7. Providing a framework for continuous improvement.
8. Maintain and strengthen national harmonisation.

10.2.2 Management of risk

For every person with a duty to ensure health and safety, the WHS Act requires that they:

1. Eliminate risks to health and safety, so far as is reasonably practicable; and
2. If it is not reasonably practicable to eliminate the risks to health and safety, they must minimise those risks so far as is reasonably practicable.

10.3 The WHS regulations

The regulations provide more detail within the framework of the Act. Regulations address the following:

- Matters relating to the way in which duties imposed by the Act are to be performed.
- Duties imposed on persons in relation to any matter provided for under the regulations.
- Matters relating to incidents at workplaces including regulating or requiring the taking of any action to avoid an incident at a workplace or in the course of conducting a business or undertaking; and regulating, requiring or prohibiting the taking of any action in the event of an incident at a workplace or in the conduct of a business or undertaking.
- Matters relating to hazards and risks including: the prescribing of standards relating to the use of or exposure to any physical, biological, chemical or psychological hazard; matters relating to safety cases, safety management plans and safety management systems (however described); and matters relating to measures to control risks.

10.3.1 Duties under the Regulations

The Regulations specify duties to identify hazards, and manage risks to health and safety by eliminating risks to health and safety so far as is reasonably practicable.

If it is not reasonably practicable, implement the hierarchy of risk controls as follows:

- Substitute (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk.
- Isolate the hazard from any person exposed to it.
- Implement engineering controls.

If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by implementing administrative controls (Regulation 36(4)).

If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by ensuring the provision and use of suitable personal protective equipment.

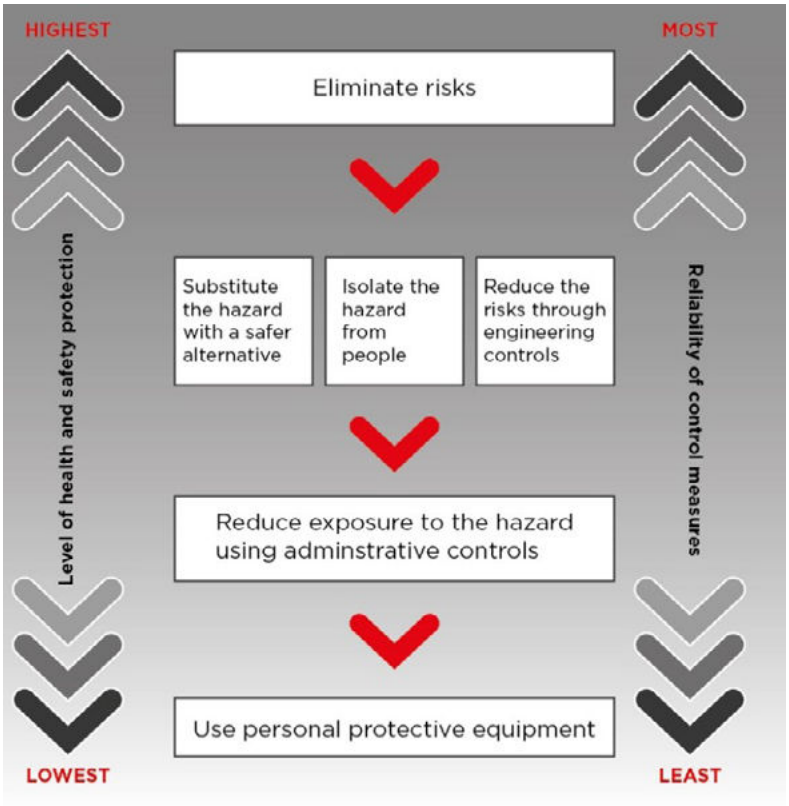


Figure 16: Hierarchy of risk controls

Source: Safe Work Australia: Model Code of Practice: How to manage work health and safety risks, May 2018

10.4 Codes of practice

An approved code of practice provides practical guidance on how to achieve the standard of work health and safety required under the Act and the Regulations and effective ways to identify and manage risks.

A code of practice can assist anyone who has a duty of care in the circumstances described in the code of practice. Following an approved code of practice will assist the duty holder to achieve compliance with health and safety duties in the WHS Act and Regulations.

Failure to comply with a code of practice can be used in a court as evidence of non-compliance with the Act.

10.5 Employers or business

Employers or businesses, or anyone who falls under the definition of a person conducting a business or undertaking (PCBU), has the following legal obligations under work health and safety laws:

- Identify hazards in the workplace.
- Assess the risk those hazards create.
- Eliminate or minimise them as much as possible.

An employer and/or PCBU has a legal duty to eliminate or minimise risks to health and safety of workers at work in their business or undertaking.

The person with management or control of a workplace also has a legal duty to make sure, so far as is reasonably practicable, that there are no health and safety risks to anyone working in or visiting the workplace. This includes when people are entering or exiting the workplace. It generally does not include residences, unless the residence is occupied for the purpose of conducting a business.

A workplace can include a vehicle, vessel, aircraft, mobile structure or any installation on water that a worker might be at while at work.

Ways that a business can manage their hazards and health and safety risks include:

- Consult with workers about safety, hazards, and risk control.
- Implement a safety management system and a risk management process that are regularly reviewed.
- Consult, co-operate and co-ordinate with any other duty holders who have a responsibility for health and safety.
- Maintain the workplace and facilities in a safe condition.
- Provide appropriate training.
- Implement appropriate procedures for workers who work in remote or isolated worksites.
- Provide first aid equipment and prepare, implement and practice emergency plans for evacuations in emergencies.

10.6 Directors and officers

You are an officer of a corporation or entity if you:

- Are appointed as a director or officer of a corporation.
- Have influence over decisions that affect the business or undertaking of the corporation or entity, including financial and administrative decisions.
- Can instruct other officers or directors about the business or undertaking of the corporation or entity.
- Are a liquidator of the business or undertaking.
- Are a trustee of the business or undertaking.

As an officer, you must ensure the business complies with its work health and safety obligations.

10.7 Workers

A worker is a person who carries out work in any capacity for a business or employer or person conducting a business undertaking (PCBU). They can be:

- An employee.
- A trainee, apprentice or work experience student.
- A volunteer.
- An outworker.
- A contractor or sub-contractor.
- An employee of a contractor or sub-contractor.
- An employee of a labour hire company.

While at work a worker must:

- Take reasonable care for their own health and safety.
- Take reasonable care for the health and safety of others.
- Comply with any reasonable instructions, policies and procedure given by their employer, business or controller of the workplace.
- Ask if they're not sure how to safely perform the work.
- Use personal protective equipment (PPE) in the way they were trained and instructed to use it.
- Report injuries and unsafe and unhealthy situations to their supervisor or to their health and safety representative (HSR).

If you are employed as a contractor or sub-contractor, or through a labour hire recruiter or agency, you are a worker and have the same obligations to ensure your own and your coworkers' health and safety.

11. Appendices

11.1 Hazards when using telehandlers

11.2 Example: Checklist for picking the right telehandler and attachment

11.3 Example: Telehandler hazard assessment checklist

11.4 Example: Telehandler pre-start inspection checklist

11.5 Publications and reference material

11. Appendices

11.1 Hazards when using telehandlers

Mechanical hazards	• Loss of stability or rolling over • Crushing/trapping • Impact • Friction or abrasion • Cutting or severing • Ejection of parts or people • Mechanical/structural failure • Unexpected/uncontrolled movement • Contact with moving parts during testing, inspection, maintenance, operation or repair • Slip, trip, fall hazards
Fire or explosion hazards	• Fire • Explosion/gas buildup • Fuel, gas or other flammable fluids
Electrical hazards	• Contact with overhead power lines • Electrical contact or arcing • Poorly maintained/damaged electrical components • Electrostatic • Thermal radiation • External factors on electrical equipment (e.g. power surge, lightning strike, electromagnetic radiation)
Environmental hazards	• Noise • Weather • Heat or cold • Fumes, vapours, flammable substances • Wind • Hazardous substances
Ergonomic hazards	• Obstructed visibility from the operator position • Constrained postures • Poor lighting • Mental overload/underload • Poor control condition or orientation

Operational hazards	• Poor ground conditions • Overturning caused by sail effect of large objects on windy days • Poor visibility • Start/moving self-propelled machinery • Uncontrolled movement • Poor access • Loading/overloading lifting materials • Falling objects including displaced or dropped load
Other hazards	• Failure of energy supply • Failure of the control system • Failure to select plant suitable for its intended purpose • Operational error • Lack of operator competency

11.2 Example: Checklist for picking the right telehandler and attachment

The information in this section will help you pick the best telehandler and attachments for each job, taking into account the worksite, operator competence/training requirements and hazard assessment.

The person responsible for using telehandlers safely in the workplace should do the assessment before any telehandler and attachment is chosen.

Site and/or location details
Company:
Site name and location:
Assessment conducted by (name):
Date:
Position/title:
Phone:

How will the telehandler be used? (Site conditions and notes on lift procedure)
This section asks you to consider where you are using the telehandler and what type of work you are doing, such as surface conditions, terrain, freely suspended load use etc.

Telehandlers

Hazard or selection factor	Consider the following	Checked
What space is available for telehandler access, deployment, operation and stowage, including space required for correct deployment of stabilisers?	• Do I have enough room to manoeuvre? • Is pedestrian access a problem? • Are drawings available of the work site?	
Are there particular hazards associated with the location and/or the task to be carried out?	• Conduct a site risk assessment and prepare a SWMS	
Are there electrical hazards such as power lines in the work area?	• If there are power lines or electrical assets then a qualified electrical spotter is required	
Is the telehandler an appropriate machine for this application?	• Consider a forklift • Consider a mobile crane if lifting freely suspended loads	
What are the weight, dimensions and characteristics of the telehandler?	• Does it need to be lifted into place with a crane? • Is it to be used on a suspended slab? • Are there space restrictions on site? • Do I need special tyres for the application?	

Hazard or selection factor	Consider the following	Checked
What are the weight, dimensions and characteristics of the load(s)?	• Will the size of the load cause problems with wind? • Is the mass to be lifted known or estimated? • Are there a variety of loads and/or tasks to be lifted or undertaken?	
What reach and lift height will be required?	• Has the task been undertaken before?	
How far will the loads need to be carried and over what sort of terrain?	• Is the terrain rough with uneven ground and slopes? • Do the slopes exceed the manufacturers pick and carry slope limits?	
What are the number, frequency and types of lifting operations?	• Selection of the appropriate telehandler and attachments	
Is there a need for attachments such as buckets or lifting hooks?	• Ensure the chosen telehandler has the anticipated attachments approved for use.	
What is the effect of the operating environment on the telehandler and vice versa?	• Is the environment extremely hot or cold? • Do I need AC?	
Is there a need for the telehandler to travel on public roads?	• Do I need traffic management plans? • What licence requirements are there?	
Operators need to be trained and competent to use telehandlers	• Do I have operators available with the correct training and qualifications?	
What is the source of the telehandler – user's own fleet, hired in or purchased?	• Don't try and make what you have available fit the criteria.	
Will the operator have adequate visibility for the location in which it will be used?	• Is there a need for additional work lights or reversing cameras? • Will the load or telehandler boom obstruct the operator's vision? • Is a safety observer required?	
Is a telehandler still an appropriate machine for this application?	• Yes/No	

Attachment

Hazard or selection factor	Consider the following	Checked
Which make and model telehandler is the attachment going to be fitted to?	• See assessment above	
What task is the attachment required for?	• Refer to the manufacturer or supplier for available attachments	
Which type of attachment is best suited to the application?	• Telehandler manufacturers or the rental company may be able to assist	
Is the attachment approved for use on the chosen telehandler?	• Check with the telehandler manufacturer	
Is the attachment compatible with the telehandler?	• Check with the telehandler manufacturer	
Are load charts and user instructions available for the use of the attachment on the specific telehandler?	• If not check with the manufacturers • Do not use if any of this information is not available	
Is the telehandler operator familiar with, trained and competent to operate the attachment?	• Check with state regulators or the TSHA for advice • The TSHA Gold Card lists the training modules for fork (F) buckets (B) and suspended load attachments such as Jibs (J)	
Will the operator require additional training and/or familiarisation?		
Who will be carrying out fitting and removal of the attachment and are they competent to do so?		
Will the attachment be sourced from the telehandler manufacturer, from an attachment manufacturer or a third party?		
Will the attachment be sourced from the owners own stock?		

Training/competence

This section details the competence levels needed to use different types of telehandlers and the training options available.

Telehandler types & specific procedures	Reference	Checked
What licence, training and competence is required to operate the selected telehandler?	Refer to the THSA licensing requirement information sheet	

Chosen telehandler that meets the above criteria
Name of supplier:
Make:
Model:
Plant number:
Serial number:
Date of manufacture:
Commissioned date:
Date of last service:

Chosen attachment that meets the above criteria
Name of supplier:
Make:
Model:
Plant number:
Serial number:
Date of manufacture:
Commissioned date:
Date of last service:

11.3 Example: Telehandler hazard assessment checklist

Information in this section will help identify and control the hazards of working with telehandlers, including site conditions, operator competence/training. The person or people responsible for the safe use of telehandlers in their workplace should do the assessment before a telehandler is chosen.

Site and/or location details
Company:
Site name and location:
Assessment conducted by (name):
Date:
Position/title:
Phone:

How will the telehandler be used?	Comments
Consider where you are using the telehandler and what type of work you are doing, such as surface conditions, terrain, freely suspended load use etc.	

Hazard/consideration	Consider the following	Checked
People in area	• People can be struck by the telehandler boom • People can be struck by the telehandler chassis • People can be struck by the load • Exclude public from secure site • Establish effective exclusion zone • All personnel to wear high visibility clothing • Ensure lifting team are fully briefed on need to keep clear of load during lifting and telehandler during travelling • Operator may have reduced visibility due to the boom position or load • The route the telehandler will take when accessing and travelling around the worksite.	

Hazard/consideration	Consider the following	Checked
Telehandler stability	• Ground unable to support telehandler • Potential for ground collapse or movement • Check for voids/underground services. Consult with the principal contractor and the land surveyors • Assess ground and establish if there is a requirement for stabilizer mats • If required, site supervisor to check that mats supplied match those specified in method statement • Telehandler overloaded • Ensure weight of load is known and accurate • Ensure telehandler has been adequately maintained and has current report of thorough examination. • Use of non-standard wheels or tyres • Travel on slopes, especially side-slopes • Incorrect or sudden positioning of the boom especially with freely suspended loads	
Electrocution	• Establish presence or otherwise of overhead power lines. • If present, arrange for isolation or position telehandler boom/load outside minimum safe approach distance • Consider the travel route of the telehandler as it moves around site • Barricade the area to prevent encroaching on the safe approach distances. • Consider the movement of freely suspended loads if working near power lines • Determine if a qualified electrical spotter is required.	
Movement of load	• Load collides with structure • Tag line to be attached to load to control rotation • Load collides with other plant – cranes, excavators etc. • Establish effective exclusion zone in conjunction with principal contractor • Potential for movement of load to come within arcing distance of power lines • Persons hand crushed/trapped by load • Tag line to be used • Gloves to be worn • All slinging to be completed by qualified personnel	

Hazard/consideration	Consider the following	Checked
Suspended load	• Ensure the suspended load is secured and controlled. Operator must make sure all movements are slow and controlled. • Load may swing and cause the telehandler to overturn • Load may fall on person • Ensure telehandler has been adequately maintained, has current report of thorough examination and that pre-use checks are carried out • Ensure lifting accessories with adequate capacity have been selected, that they are adequately maintained, have current report of thorough examination and that pre-use checks are carried out • Loose parts on load may fall • Inspect load for loose objects prior to lift and secure • All personnel to wear hard hats	
Working at height	• Person falling from height when attaching or removing slings • Delivery vehicle to be provided with ladder for access/egress • Access to steelwork and fall protection arrangements as steelwork installation method statement • Using the telehandler with a makeshift work platform, a work platform that slips onto the forks or standing directly on the forks buckets is extreme risk	
Fire	• Wiring, connections and cables are inspected and moved away from abrasion points and replaced if insulation is damaged • Debris and refuse are removed • When recharging batteries there is adequate ventilation • When refuelling there is adequate ventilation • Fire extinguishers are accessible, in date charged	
Wind conditions	• High wind causes load to collide with fixed object • Telehandler becomes unstable due to wind loading • Wind speed to be checked with hand held anemometer by site supervisor before lift starts. Abort if over 10m/s	

Training/competence

The competence levels needed to use different types of telehandlers and the training options available.

Telehandler types & specific procedures	Checked
All telehandlers: Operators must be trained and competent to use the particular telehandler on site.	
Emergency procedures: Suitable qualified staff must be available in an emergency (e.g. loss of normal power, operator injured, contact with power lines).	

11.4 Example: Telehandler pre-start inspection checklist

Use the following checklist if you need a separate record of the Logbook Pre-operation inspection (safety checks) done by the operator before using a telehandler.

Site and/or location details
Company:
Site name and location:
Assessment conducted by (name):
Date:
Position/title:
Phone:

Plant supplier details
Make:
Model:
Plant number:
Serial number:
Date of manufacture:
Commissioned date:

Before checking and using the machine	Checked	Comments
1. Read the manufacturer's operating instructions (or equivalent) before using the machine		

Pre-start checks	Checked	Comments
2. General condition and cleanliness		
3. Evidence of any oil leaks (including hydraulic cylinders, fittings, valves, hoses and wheel hubs)		
4. Fork carriage, (deformed arms, backrest damage, and distortion)		
5. Attachments, (completeness, damage, decals, rated capacity, fastenings)		
6. Quick-hitch fittings		
7. Pin security (pivot pins, locking pins etc.)		

Pre-start checks	Checked	Comments
8. Wheels (bent rims, wheel nuts are tight) and tyres (worn tread, cuts and damage to side walls and tread)		
9. Tyre pressure (check and record using a gauge)		
10. Hydraulic hose and pipe condition and security		
11. Boom length indicator, boom angle indicator, slope indicator		
12. Cab condition, cab door shut securely, ROPS/FOPS mounting		
13. Cab windows, including roof section need to be clean and without cracks		
14. Cracked/unauthorised welding		
15. Guards, cowlings and fasteners		
16. Decals/labels, including manufacturers serial plate		
17. Fire extinguisher (in date and charged?)		
18. Load charts for each attachment – available in cab and legible		
19. Mirrors/cameras and video screen		

Physical checks of lubricants and fluids	Checked	Comments
20. Engine oil		
21. Transmission oil		
22. Coolant		
23. Batteries		
24. Brake fluid		
25. Hydraulic oil		
26. Air filter indicator		
27. Fan belt deflection		
28. Fuel level		
29. Visual check of engine components		

Running checks – machine started	Checked	Comments
30. All controls for correct function		
31. All gauges and instruments including horn and hour meter		
32. All lights/indicators including the beacon light		
33. Heater, defroster, AC, and wipers for correct function		
34. Verify seat position and seatbelt function		
35. Any unusual noises		
36. Service brakes		
37. Verify all steering modes		
38. Stabilisers/outriggers/chassis tilt		
39. 360° rotation (slewing)		
40. Parking brake keeps the telehandler in a stopped position		
41. LLMI (longitudinal load moment indicator)		
42. LLMC (longitudinal load moment control)		
43. Actual capacity limiter (if fitted)		
44. Load indicator (if fitted)		
45. All warning devices must be operational		

NOTE: All pre-use checks must be carried out in accordance with the specific instructions published in the relevant manufacturer's operating handbook.

Faulty equipment procedure (If the telehandler was found to have any faults)	Checked	Possible control measures
1. Tag the equipment with a 'DO NOT USE' tag to warn others that the equipment is faulty		
2. Advise your supervisor of the faults with the equipment		
3. Advise the owner of the equipment that it is faulty and need attention		
4. Record details of fault in the logbook provided with the telehandler		

Criteria statement for use with pre-use check sheet

Item	Criteria
Fork arms (or attachments)	Visual checks on fork arms (or other attachment) to ensure that they are undamaged, not distorted and are securely attached to the carriage plate.
Carriage-plate (including quick hitch)	A visual check on the carriage plate to ensure that it is in good condition, not distorted and that any quick-hitch fittings are in good condition and correctly latched.
Telescopic boom	A visual check to ensure that there is no obvious damage or distortion, that all warning decals are clear and in place and, where there are visible hydraulic hoses and pipes, that they are undamaged and free to track the boom.
Hydraulics (pipes, unions, hoses)	A visual check on all other hydraulic pipes, unions and hoses to ensure that there is no damage, leakage or distortion likely to lead to breaks, etc. where visible, a check on hydraulic rams to ensure that there is no rust or scoring likely to lead to leakage past seals, etc.
Wheels & tyres	A visual check to ensure that all wheel nuts are present without signs of “working”, that there is no leakage from hubs, that no foreign bodies have become trapped in the wheel mechanism, that tyres are in good condition with no chunking, splits or signs of apparent structural breakdown. This could include a periodic check on tyre pressures.
External condition (including mirrors)	This would be a general walk around to note any surface damage, lights cracked or damaged, mirrors in place and adjusted, decals clearly displayed, etc. Also included would be any moveable panel being secured.
Cameras	If the machine is fitted with cameras, is it in position, undamaged and clean.
Cab and cab doors/windows	An inspection of all cab windows and door for cleanliness and any evidence of damage, cab door lock effective and secure, and with particular attention on the window alongside the main boom to be in position, secure, clean and undamaged.
Operating cab	This check is about the floor of the cab and the access to it including mounting steps, rubber mats, exclusion bellows, etc, and clearing any rubbish, mud, stones, paper, refreshment refuse, etc that could block the full operation of any of the controls.
Operator’s seat and restraint	This is a check on the seat itself, its condition and adjustability, and any micro-switch control that might be installed. Also included would be the condition of the restraint system and its fastenings, as necessary including the inertia lock.

Rated capacity plate/load charts	Check the load charts and rated capacity information for condition, content and clarity.
Starting procedure	The operator can then insert the key and start the start-up procedure, making sure that the machine will start correctly.
Warning lights and instruments	Once started up, the operator can then check warning lights, hour meter, instruments for correct operation and any fault codes being shown.
Lights and beacons	A check of all lights and beacons for operation.
Audible warnings	A sound check of all audible warning systems.
Hydraulic controls	The operator should operate all hydraulic controls over their full range, noting any obvious defects, rough operation, ability to reach full extension, which will (a) show that the system is fully operational and (b) lubricate the whole system. Any evidence of rubbing, scoring, leakage or other damage should be recorded.
Load moment indicator/control	The operation of the longitudinal load moment indicator or control can be checked during the above process.
Axle weight sensors	The operation of any load sensors on the rear axle could also be checked at the same time.
Stabilisers (if applicable)	Where stabilisers are fitted, they should be checked that feet are not distorted or missing, that they are secure and correctly stowed. Check, if possible, that rams are in good condition and that hydraulic seals are not leaking. A full working check should be performed.
Slew turntable (if applicable)	If fitted, the slewing operation can be checked that it is fully operational and that there are no obvious defects.
Drive and braking (all systems)	The operator should check all brake systems in both travel directions and that drive is satisfactorily delivered in all modes. The operator should check that the park brake is activated and holds the telehandler in a stopped position.
Steering (all modes)	Finally, the steering should be operated, while the machine is moving in both directions, over its full steering lock in all modes (i.e. front-wheel, four-wheel and crab-steer).

11.5 Publications and reference material

Legislation

The Work Health and Safety Act 2011 (ACT)

The Work Health and Safety Act 2011 (Queensland)

The Work Health and Safety Act 2011 (NSW)

The Work Health and Safety (National Uniform Legislation) Act 2011 (NT)

The Work Health and Safety Act – 2012 (SA)

The Work Health and Safety Act – 2012 (Tasmania)

The Occupational Health and Safety Act 2004 (Victoria)

The Occupational Health and Safety Act 1984 (WA)

The Work Health and Safety Regulation 2012 (ACT)

The Work Health and Safety Regulation 2011 (Queensland)

The Work Health and Safety Regulation 2017 (NSW)

The Work Health and Safety (National Uniform Legislation) Regulations (NT)

The Work Health and Safety Regulations – 2012 (SA)

The Work Health and Safety Regulation 2012 (Tasmania)

The Occupational Health and Safety Regulations 2017 (Victoria)

The Occupational Health and Safety Regulations 1996 (WA)

Australian Standards	Standard number
Rough-terrain trucks – Safety requirements and verification – Variable-reach trucks	AS 10896.1
Cranes, Hoists and Winches – Safe Use – Telescopic handlers	AS 2550.19
Safety of Machinery – Design of Controls, Interlocks and Guarding – Emergency Stop – Principles for Design	AS 4024:1604
Lifting devices	AS 4991

Codes of practice

How to Manage Work Health and Safety Risks

Managing Risks of Plant in the Work Place

Managing the Risk of Falls in the Work Place

Managing Electrical Risk in the Work Place

Construction Work

Consultation, Co-operation and Co-ordination

Overseas standards

EN 1459-1 Rough-terrain trucks – Safety requirements and verification – Variable-reach trucks

EN 1459-2 Rough-terrain trucks – Safety requirements and verification – Slewing trucks

EN 15000 Safety of industrial trucks – Self-propelled variable reach trucks – Specification, performance and test requirements for longitudinal load moment indicators and longitudinal load moment limiters

ISO 10896.1 Rough-terrain trucks – Safety requirements and verification – Variable-reach trucks

ISO 10896.2 Rough-terrain trucks – Safety requirements and verification – Slewing trucks

ISO 10896.4 Rough-terrain trucks – Safety requirements and verification – Additional requirements for variable-reach trucks handling freely suspended loads

ISO 10896.7 Rough-terrain trucks – Safety requirements and verification – Longitudinal load moment systems

TSHA

Telescopic Handler Association

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+61 2 9998 2222

www.tsha.com.au

info@tsha.com.au