

RIIHAN309F Conduct Telescopic Materials Handler Operations



PART 1 - INTRODUCTION

Course Introduction

In this training course, we will cover these topics about operating a telescopic materials handler:

- ❖ Licensing and training requirements
- ❖ Planning and preparing for operations.
- ❖ Conducting pre-operational checks.
- ❖ Operating the Telescopic Handler.
- ❖ Attaching, securing, lifting, carrying and placing materials and loads.
- ❖ Selecting, fitting and removing attachments.
- ❖ Shutting down and securing the Telescopic Handler and worksite.

Licensing and training requirements for Telescopic Handlers explained

Telescopic Handler Description

A Telescopic Handler or telehandler is a mobile all terrain multi-purpose machine fitted with a variable height/reach telescopic boom and a lifting attachment. The most common attachment are forks, but Telescopic Handlers can be fitted with a variety of attachments for different types of loads.

Some other attachment types available are:

- ❖ Earthmoving Buckets
- ❖ Crane Jibs
- ❖ Work Platforms



Do I need a high-risk work licence to operate a Telescopic Handler, and if so, which one?

The WHS/OHS regulators in each state have generally agreed that a Telescopic Handler will fall under the high-risk work (HRW) licence category of either non-slewing or slewing mobile crane if they have a lifting capacity greater than 3 tonnes and are fitted with a crane jib lifting attachment. The class of HRW licence required for this configuration is CN (Non-Slewing) or C2 or above (Slewing).

NOTE: If you hold a C2 or above class, this also encompasses the requirements for CN class.

NOTE: As at June 2016, Victoria and ACT require any operator of a Telescopic Handler with a lift capacity greater than 3 tonnes to hold a HRW CN Licence, regardless of attachment being used.

Throughout Australia, there are some variations to the training and licensing requirements for Telescopic Handler operators, depending on attachment combinations and lifting capacities.

WHS Act 2011

Duties of a Person Conducting a Business or Undertaking (PCBU) - Primary duty of care:

- ✓ A PCBU has the primary duty of care to ensure the health and safety of workers while they are at work in the business or undertaking.
- ✓ A PCBU is also responsible for ensuring work being carried out does not entail undue risk to the health and safety of others.

This means the PCBU must:

- ✓ Provide and maintain a safe work environment, safe plant and structures;
- ✓ Provide and maintain safe systems of work;
- ✓ Ensure the safe use, handling and storage of plant, structures and substances;
- ✓ Provide instruction, training, information and supervision; and
- ✓ Monitor the health of workers and conditions at the workplace.

A PCBU will need to show some form of proof that the operator has been instructed on the safe use of a Telescopic Handler. Verbal instruction is not an effective method of training as it lacks proof of training evidence.

What if I do nothing?

To disregard the law (the Act is law) can result in hefty fines and or jail. There is an increased risk of rolling or tipping the Telescopic Handler from not understanding the limitations of the machine.



Operating a reach stacker



- ▶ This training does not cover operations of reach stackers (shown at left), these require a Reach Stacker High Risk Work Licence (RS Class).
- ▶ Contact your State WHS/OHS Regulator for more details.

What is a Telescopic Materials Handler?

A telescopic materials handler is a rough terrain, self-propelled wheeled machine which has a hydraulically operated telescopic boom which can move vertically, horizontally and, on some models, rotate.

A wide variety of attachments are available, which can be fitted using a coupling or quick hitch system.

Telescopic Handlers come in a variety of sizes with varying capacity for lifting, carrying, scooping and stacking materials.

Telescopic materials handlers are known by other names, depending upon the state or territory you are working in.

- ▶ Multi-purpose tool carrier.
- ▶ Telescopic forklifts.
- ▶ Telescopic Handlers are sometimes known by their proprietary brand names such as Manitou or Merlo, similar to Skid Steer Loaders being referred to as Bobcats.
- ▶ This type of reference is best not used, as most manufacturers sell a wide variety of plant types and models, and confusion can result when discussing training required for any particular plant type.

Telescopic Materials Handler – Main Components

- A. Cabin – The position from which the operator controls the Telescopic Handler. It should be fitted with a ROPS (roll over protective structure) and a FOPS (falling object protective structure).
- B. Boom – The arm of the Telescopic Handler that is able to telescope in and out and is used to lift and shift materials.
- C. Stabilisers – Used to maintain stability while lifting a load. Stabilisers are not fitted to all Telescopic Handlers.
- D. Attachments – Interchangeable tools used to handle different types of loads. Common attachments include forks, buckets, workbaskets, jibs and other specific materials handling tools (grapples, cages).



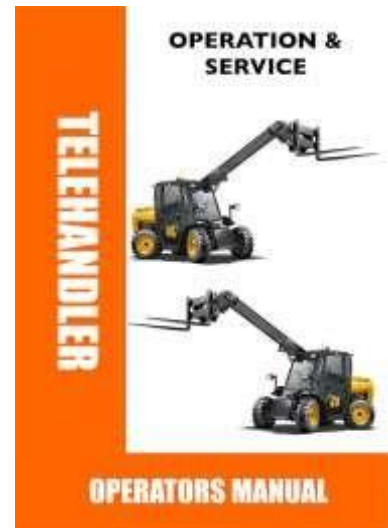
PART 2 – PLANNING AND PREPARING FOR WORKING WITH A TELESCOPIC HANDLER

Compliance Documentation

Compliance documentation is the name given to the documents that require you to undertake tasks in a particular way to meet a given standard, such as construction plans, environmental and quality policies related to project requirements.

Compliance documentation can also include:

- ▶ Codes of Practice – such as Managing Risks of Plant in the Workplace.
- ▶ Regulations and guidelines from authorised organisations or external personnel (such as WHS/OHS Regulators, Environment and Mining Authorities).
- ▶ Australian Standard AS 1418.19 (2007) *Cranes, hoists and winches – Telescopic Handlers*
- ▶ Site-specific policies and procedures, including emergency and evacuation procedures.
- ▶ Safe Work Method Statements (SWMS) and Job Safety Analysis (JSA).
- ▶ Safety Data Sheets (SDS)
- ▶ Telescopic Handler operations manual.
- ▶ Plant logbook for pre-starts and fault reporting



Being able to access, interpret and apply the requirements of the compliance documents is part of the job for any plant operator.

During your site induction, you should be told how to access the compliance documentation relevant to your site and duties.

Safety Data Sheet (SDS)

A Safety Data Sheet is a document containing important information about a hazardous material (which may be a hazardous substance and/or dangerous goods) that may be a load you need to move with the Telescopic Handler.

It includes safe handling practices and safety requirements.

There should be a register of SDS at every work site.

It should be used as an information tool to ensure that everyone is involved in managing exposure to hazardous substances.



Selecting the right machine for the job

To select an appropriate Telescopic Handler and attachment for the job, think about the size and weight of the loads that need to be moved, the space you have to work in, how high you need to lift loads and how close you can position the Telescopic Handler to the unloading area.

Your choice of attachment for the Telescopic Handler will be made based on the type of load to be shifted, and the capacity, make and model of the Telescopic Handler.

Remember, if it can lift more than 3 tonnes, and you are planning to use a crane jib attachment, check HRW licensing requirements in your state.

PART 3 – SITE INSPECTIONS AND RISK ASSESSMENTS – IDENTIFYING AND CONTROLLING HAZARDS

A **RISK** is the chance of a hazard hurting you or somebody else or causing some damage to plant or property.

A **HAZARD** is the thing or situation that causes injury, harm or damage.

If you can remove or at least control a **HAZARD** you can reduce the **RISK** involved. This is known as **RISK MANAGEMENT**.

Risk/Hazard Identification

Part of your job is to look around to see if you can find any hazards before you start using the Telescopic Materials Handler.



A good tip is to check:

Above head height – remember the Telescopic Materials Handler can reach much higher than you can!

At eye level – look around to see if there is anything in the way of where you want to drive the Telescopic Materials Handler.

On the ground (and below) – humps and bumps, slippery surfaces and rubbish can all be dangerous.

Typical site hazards when operating Telescopic Handlers

Installed services:

- ▶ Underground or aboveground power lines.
- ▶ Telephone lines.
- ▶ Gas pipes.
- ▶ Cables.



Plant and Equipment:

- ▶ Other vehicles.
- ▶ Conveyors.
- ▶ Fixed plant.
- ▶ Overhead structures and services.
- ▶ Unattended equipment.
- ▶ Lifting equipment.
- ▶ Moving vehicles and equipment.



The occasions when other plant is moving are the most hazardous.

As an operator, you need to be very aware of your surroundings when moving the Telescopic Handler, but you should also be very aware of other plant or vehicles moving around you. Follow vehicle movement plans and your worksite procedures for plant movements.

Terrain Hazards

- ▶ Uneven or unstable ground.
- ▶ Suspended or elevated slabs/floors
- ▶ Excavations or recently filled trenches
- ▶ Embankments and cuttings.
- ▶ Holes and potholes.
- ▶ Recently filled trenches.
- ▶ Dust and noise.
- ▶ Trees.



Zones within an area maybe particularly dangerous or hazardous due to the work methods used in that area (e.g. blasting zones) or due to the materials or processes being used with in that zone.

Always follow your site signs and warnings.

Structural Hazards

- ▶ Buildings and structures
- ▶ Facilities.
- ▶ Bridges.
- ▶ Suspended pathways/slabs.
- ▶ Walkways.
- ▶ Structural obstructions.
- ▶ Ramps and bridging plates.



Chemical or Material Hazards

- ▶ Fuel.
- ▶ Exposure to chemicals.
- ▶ Contaminants.
- ▶ Gases.
- ▶ Dusts.



Specific training may be required to deal with chemical hazards.

Speak with your supervisor for guidance on specialised training for the chemical hazards on your worksite.

Weather Conditions

- ▶ Storms or floods
- ▶ Heat and humidity
- ▶ Fires.
- ▶ High Winds



People

- ▶ Site personnel/workers.
- ▶ Non-inducted personnel/workers.
- ▶ Site visitors.
- ▶ Others authorised or unauthorised.



Operational Hazards when using different attachments

The versatility of the Telescopic Handler comes from changing the attachments that are used with the Telescopic Handler.

These additional attachments allow the Telescopic Handler to be used as a forklift, front-end loader, non-slewing crane, elevating work platform and many other machine types. The operational hazards will vary, depending on attachment type being used.

Telescopic Handler Boom Extensions and Attachments

When the boom is extended the operator must have clear vision of any overhead power lines or structures.

Many units have a clear perspex section in the roof of the cab so that the operator can see clearly whenever the boom is raised.



Power Line Distances and Clearances

Contacting live powerlines with the Telescopic Handler boom can be lethal.

Safe clearance must be maintained at all times when operating near overhead power lines. The below table show the current safe power line distances for New South Wales:

It is very important that you know the safe operating distances for different types of power lines and the steps you must take if your job needs you to work closer than the safe distances.

Generally, if you need to work closer than the safe work distance you must:

- Contact the local electrical authority for permission to work closer (this is called an exemption).
- Have the power lines shut off. If this is not possible then have the power lines insulated.
- Use a spotter (depending on local laws and rules).

Distances are different depending on the voltage of the power lines. You should check with the local electrical authority for information and advice to find out the voltage of power lines in your work area.

NSW

Power Line Type	Distance
Up to 132kv	3.0m
132kv up to 330kv	6.0m
More than 330kv	8.0m

To work closer than these distances requires authority from the relevant network provider and adherence to cl.64 (2) (e) of the regulations. You must be an accredited person and use a safety observer/spotter.

Tiger Tails

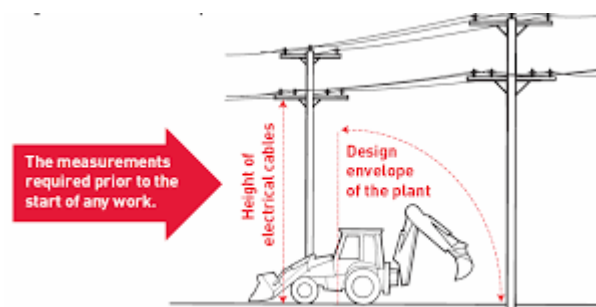
Tiger tails are used as a visual aid to identify the location of overhead electric/power lines.

It is important to note that tiger tails **DO NOT** insulate the electric/power lines so exclusion zones and safe operating distances must still be maintained, even when tiger tails are present.



Design Envelope

Subtract the design envelope from the height of the overhead power line and check this figure against the clearances listed, to determine what risk controls (including permissions) are required to safely operate in the vicinity of overhead power lines



Traffic Management

Site isolation plans outline how the site will be isolated from the general public. It could detail the use of signage, barricades and fences but also how specific areas of the site will be isolated to keep the construction crews safe (generally done using concrete barriers).

These plans are used to isolate construction traffic from pedestrians and other vehicles for safety reasons.

In most states of Australia, traffic management including the erection of signs is covered under specialised traffic control training.

If you are undertaking traffic management activities such as erecting signs, you need to have the appropriate training and certification.



Risk Treatment – Controlling the hazards

The Hierarchy of Hazard Control is the name given to a range of control methods used to eliminate or control hazards and risks in the workplace. The Hierarchy has 6 levels, from most to least effective:

1. Elimination	The preferred method of dealing with a hazard is to eliminate the hazard . Removing the hazard will always be the preferred option but is often not possible.
2. Substitution	Substitute the process being used or that are causing the hazard. Do the task differently, purchase different equipment.
3. Isolation	Isolate the hazard by using barriers, fences or lock out devices.
4. Engineering Measures	Use engineering controls . This involves installing equipment to minimize the hazard or risk, such as hand rails on steps.
5. Administrative/ Safe Work Practices	Use administrative controls or safe work practices . This involves using process to minimize the risks, such as procedures, safe work method statements and rosters to spread the risk.
6. Personal Protective Equipment	Use personal protective equipment. Personal Protective Equipment (PPE) is the equipment that can be worn by the individual to protect them from the hazard, such as hard hats, safety boots and eye and hearing protection. PPE is the least preferred method of controlling a hazard and should be used with other methods, not just on its own.

You may need to use a number or combination of control measures in conjunction to reduce the risk level to an acceptable level.

Control measures may include:

- ✓ Lights, lighting
- ✓ Traffic Control
- ✓ Warning Signs
- ✓ Flashing lights
- ✓ Spotter
- ✓ PPE
- ✓ Barriers, barricades, marker cones
- ✓ Using packing under stabilisers
- ✓ Stabilising the ground
- ✓ Contact competent person
- ✓ Relocation
- ✓ Safe Operating Procedures (SOP)

Summary of Risk Assessment Process

1. Identify the hazards involved with operating the Telescopic Handler and the work you will be doing with it
2. Work out the levels of risk involved if not controlled
3. Work out best ways to control the risks acceptably
4. Put controls in place
5. Involve anybody else that needs to be in the process
6. Make sure the controls are effective on a regular basis
7. Keep records of what you do

For more information, refer to relevant model Codes of Practice (Safework Australia) such as – Managing Risks of Plant in the Workplace, How to Manage Work Health and Safety Risks, Construction etc.

PART 4 – CONDUCT TELESCOPIC HANDLER PRE-OPERATIONAL CHECKS

To select an appropriate Telescopic Handler and attachment for the job, think about the size and weight of the loads that need to be moved, the space you have to work in, how high you need to lift loads and how close you can position the Telescopic Handler to the unloading area.

Your choice of attachment for the Telescopic Handler will be made based on the type of load to be shifted, and the capacity, make and model of the Telescopic Handler.

Remember, if it can lift more than 3 tonnes, and you are planning to use a crane jib attachment, check HRW licensing requirements in your state.

Telescopic Handler Pre-Operational Checks

Before starting operations, carry out pre-operational checks according to:

- ▶ The manufacturer's operations manual or,
- ▶ Checklist on the logbook front cover, or
- ▶ Any site specific procedures.

Routine Checks include:

- ▶ Visual and Pre-Start Checks (checks done before the Telescopic Handler is started up).
- ▶ Operational Checks (after the Telescopic Handler is started up).

Your workplace could have a standard form used for documenting routine checks, but in most cases the Telescopic Handler will have a logbook supplied with the unit, and kept in the cab in a red pouch.



TELESCOPIC HANDLER ASSOCIATION
Division of Elevating Work Platform Association

SAFETY CHECK AND ROUTINE MAINTENANCE LOGBOOK

OPERATOR SAFETY CHECKS

OPERATOR: To ensure your safety we recommend the operator should do all safety checks below prior to the commencement of each work shift.

NAME/ID: _____

PRE-START CHECKS: Telescopic Handler parked level, engine stopped and handbrake applied and in neutral.

1. Check manufacturer's operating instructions, manual and any other information supplied with the machine to do with its safe use and operation.
2. Walk around the machine and do a quick VISUAL CHECK for anything unsafe (i.e. a problem could have been evident or a machine could have become tampered with overnight or between shifts). Include the following checks:
 - a. Damage - No damage to the machine since last used.
 - b. Leaks - Water, fuel, LPS (gas) or oil leaks including hydraulic rams and hoses.
 - c. Guards and Covers - All in place and secure.
 - d. Fire Extinguishers (if fitted) - Check charged OK and firmly secure.
 - e. Tyres and Wheels - Check tyre, wheels and rim condition, wheel nut tightness and tyre pressure.
 - f. Brake Contamination - No evidence of oil or fluid leaking onto and contaminating brakes. Check the inside of the wheel hubs for any evidence of leaks. DO NOT allow any part of your body under the machine. If brakes are contaminated DO NOT operate the machine.
 - g. Grab Rails and Steps - Check clean and secure, free of grease and mud.
 - h. Under Machine - Check for signs of leaks and damage.
 - i. Attachments - Check attachments are correctly fitted and locked in position, free of damage and leaks. Check forks and carriage in good condition.
3. With the visual inspection complete, check the Fluid Levels - Radiator (when cold) plus fuel, engine hydraulic transmission and brake fluids as applicable.
4. Top up as necessary with the correct, clean fluid.
Now climb onto the operators driving location and check the following:
 - a. Doors - Close and latch OK (as applicable).
 - b. Seating/Seat Belt - Seat condition, security and adjustment, seat belt condition, latching and operation.
 - c. Controls - All levers and controls are OK and nothing bent, broken, damaged or loose.
 - d. Housekeeping - Drivers compartment is clear of loose or foreign objects which could pose a hazard.
 - e. Visibility - Check windscreen, side windows and mirrors are clean and adjusted correctly. Check wipers work and windscreen washer reservoir topped up as necessary (if applicable).

PRE-OPERATIONAL CHECKS:

5. Load Charts - DO NOT OPERATE this machine unless you have referred to and understood the Load Charts for the telescopic handler and attachments (if applicable) being used. This Telescopic Handler must NOT be operated beyond the load limitations shown on the Load Charts as this may cause the machine to tip or roll over.
6. Fasten Seat Belt - Before starting the engine (and always when operating) fasten your seat belt and ensure it is correctly adjusted.
7. Test Drive - Before commencing work with the machine start the motor, as per the instruction manual and check the operation (as fitted) of the gauges, overload indicator, brakes, steering, audible warnings (horn, forward and reverse alarms) and road lights. NOTE: If machine has airbrakes, ensure brake system is fully charged before releasing the handbrake, test the brakes. To test drive the machine drive it a short distance at a safe speed in a "safe area" on flat, clear, stable ground, clear of personnel, obstructions and "drop offs". With the machine in motion test steering by turning steering full lock in both directions. Check all controls operate correctly, including outriggers (if applicable).
8. On completion of all items above record results in "Operator Safety Check" in "Section 1" of this logbook.
If machine was found to have any faults or problems
SEE PROCEDURE BELOW.

FAULTY EQUIPMENT PROCEDURE:

1. Record details of all faults / problems in "Section 2" of this Logbook under Part A.
2. Advise your supervisor (if applicable) of any faults with the machine.
3. Advise the owner of the machine that it is faulty and needs attention.
4. If machine needs to be withdrawn from service attach a "DO NOT OPERATE" tag to warn others.

IF YOU ARE UNCERTAIN ABOUT ANY OF THE ABOVE OR HOW TO OPERATE THE TELESCOPIC HANDLER OR ATTACHMENTS REFER TO THE MANUFACTURER'S INSTRUCTIONS AND/OR CONTACT THE OWNER OF THE MACHINE.

04/01/2012

The above is from the Telescopic Handler Association logbook with inspection checklist on front cover.

Inspection and Service Logbook

The service logbook is kept in the cab of the Telescopic Handler, usually in a red pouch.

The logbook should be the first reference when conducting your pre operational inspection to check if the TSH is in serviceable condition for use.

If the Logbook is missing, the Telescopic Handler must not be used.

The figure at the right shows the inside cover, where machine details are recorded.

TELESCOPIC HANDLER ASSOCIATION OF AUSTRALIA

TELESCOPIC HANDLER LOGBOOK

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ABOUT THIS LOGBOOK: Until replacement, this logbook must remain with this telescopic handler at all times and must be used by the Operator and Owner of the telescopic handler to record equipment details, safety checks, routine maintenance, any faults found, and the action taken to rectify the faults.
This logbook is part of a kit available from the EWPA, www.ewpa.com.au

EQUIPMENT DETAILS:

Owner of Equipment:	Asset No (if applicable):	Equip Make/Model:	Serial No:	Date of Manufacture:
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LOGBOOK ISSUED BY:

Name of Person Issuing Logbook:	Company, Location, Dept, Ph No:	Signature:	Date Logbook Issued:
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PREVIOUS LOGBOOK (When Issued) ☐ YES ☐ NO

Original Date of Commission:

Disclaimer: To the maximum extent permitted by law, the Telescopic Handler Association of Australia (division of Elevating Work Platform Association of Australia Incorporated) shall not be liable to any person relying on or using this logbook for any loss, damage or injury however arising. Liability arising from the Breach of a Condition or Warranty implied by the Trades Practices Act 1974 is limited to the supply of a new logbook.

OPERATOR SAFETY CHECK RECORD 1

The log book has 3 sections for use:

Section 1 is used to record the daily inspection by the operator.

1 OPERATOR INSTRUCTIONS / SAFETY CHECK RECORD

Prior to each work shift, before using this Telescopic Handler (TSH), the operator (or competent person) must:

1. Do all "Operator Safety Checks" (as shown on front cover) and record/sign below.
2. Record any "Faults/Problems" found in "Section 2, Part A" (blue pages).

Date	Time	Operator Safety Checks Done By: Name of Operator or Competent person (Capitals)	Safety Check Results: Tick (✓) if all okay. Cross (X) if any faults or problems	Operator's Signature	Operator's Card, Ticket or Licence No., Certificate of Competency	Supervisor's Signature: (As Applicable)
1	AM/PM		<p>Operator or User should record any "Faults/Problems" found in "Section 2, Part A" (Blue pages).</p> <p>IMPORTANT: ANY SAFETY RELATED FAULTS MUST BE REPORTED AND CORRECTED OR THE TELESCOPIC HANDLER WITHDRAWN FROM SERVICES.</p>	1		
2	AM/PM			2		
3	AM/PM			3		
4	AM/PM			4		
5	AM/PM			5		
6	AM/PM			6		
7	AM/PM			7		
8	AM/PM			8		
9	AM/PM			9		
10	AM/PM			10		

2 FAULTS / PROBLEMS & ACTION TAKEN

PART A: FAULTS/PROBLEMS (User or Operator to Complete)		PART B: ACTION BY SERVICE PERSON		
3	Person Reporting Fault/Problem (Name in Caps):	Dept./Other Info (Caps):	Service Person (Caps):	
	Person Problem Reported to (Name in Caps):	Dept./Other Info (Caps):	Qualifications (Caps):	
			Co./Dept. (Caps):	
	Date Reported:	Time Reported:	Date Rectified:	Time Rectified:
			AM/PM	AM/PM
Brief Details of Fault/Problem:		Action Taken (Summary in Caps):		
ANY SAFETY RELATED FAULTS MUST BE REPORTED AND CORRECTED ON THE TELESCOPE HANDLER WITHDRAWN FROM SERVICE		Signature: _____		
4	Person Reporting Fault/Problem (Name in Caps):	Dept./Other Info (Caps):	Service Person (Caps):	
	Person Problem Reported to (Name in Caps):	Dept./Other Info (Caps):	Qualifications (Caps):	
			Co./Dept. (Caps):	
	Date Reported:	Time Reported:	Date Rectified:	Time Rectified:
			AM/PM	AM/PM
Brief Details of Fault/Problem:		Action Taken (Summary in Caps):		
ANY SAFETY RELATED FAULTS MUST BE REPORTED AND CORRECTED ON THE TELESCOPE HANDLER WITHDRAWN FROM SERVICE		Signature: _____		

This should be checked for evidence of servicing every 90 days or 200 hours, as well as major annual/every 800 hours service and inspection

OWNER ROUTINE MAINTENANCE & SAFETY CHECKS 3

Pre-Start Checks

Pre-start checks are done before the engine is started.

Visual Checks

Walk around the Telescopic Handler and check for:

- ▶ Any signs of structural damage or wear such as flaking paint on welded joints (can be a sign of overloading or stress), dents, cracks and rust.
- ▶ Any fluid leaks under the Telescopic Handler.
- ▶ All signs and labels/decals are present and readable (load ratings, control labels and other decals).



Tyre Condition - All tyres should be inspected daily as follows:

- ▶ The tread and side walls should be checked for bulges and separation
- ▶ The tread and side wall should be checked for cuts

Tyre Pressure - It is extremely important that the tyres are inflated to the correct pressure. The stability of the Telescopic Handler depends on the tyres being correctly inflated.

- ▶ Tyre pressures should be marked on the chassis adjacent to each wheel
- ▶ Pressures should be checked daily when cold
- ▶ If necessary, inflate tyres to correct pressure as stated in the manufacturers operators manual
- ▶ Personnel inflating tyres should stand a minimum of 3 metres away from the tyre and outside the likely explosion trajectory to avoid injury in the event of a failure. This will require 3 metres of airline between the nozzle and the airline trigger mechanism.
- ▶ Personnel should ensure that they stand to one side of the tyre facing the tread when inflating
- ▶ Tyre valves should be checked to ensure they are not leaking. Valve stem caps should always be replaced



Wheels

- ▶ Checks hubs for oil leakage.
- ▶ Check wheel nuts for tightness, check witness marks are aligned.

Fluids

Check all fluid levels (engine oil, transmission, hydraulic oil, brake fluid, fuel, battery and coolant water level).

NOTE: Always check when engine is not running, and cold. The Telescopic Handler should be parked on a level surface.

Refer to operator manual for correct fluid type for top up, if level is low.

Outriggers/Stabilisers - Outriggers/stabilisers are clean and secure, structurally sound, suitable packing is available if required.

Hydraulics – Check hydraulic rams, fittings and hoses for damage or leaks.



Attachment Inspection and Checks

If being used, check the hydraulic fittings and hose connections are properly attached and for fluid leaks or wear points in the hoses.

Ensure all locking pins are correctly locked in place – actually look and feel to make sure they are in place.

Check load boards and backrest for security and condition of tynes (no cracks or bends).

Cabin - Climb into the cabin, facing forwards, using 3 points of contact at all times. Make the following checks:

- ▶ Control labels and load charts are present and readable.
- ▶ Operations manual is present.
- ▶ Mirrors and windscreen are clean.

Start Up Procedures

- ▶ Wait until the glow plug light goes out before starting the engine.
- ▶ Then check for external signs of oil or fluid leaks. It is common for the startup process to cause a leak through hoses or fittings breaking.



Operational Checks

Make sure you have plenty of room to test out the Telescopic Handler before conducting operational checks:

Gauges and indicators

Check any display instrumentation is working, including level indicators, computerised load monitoring, reversing camera if fitted, temperature, level and pressure gauges, alarms and monitors.

Accessories

Check any fitted accessories are in working order – wipers, two-way radios, horns, air conditioner.

Controls

- ▶ Forward and reverse gears, steering modes and brakes are functioning correctly.
- ▶ All movements tested to full extent (boom luffing and telescoping, carriage tilt, frame levelling etc).
- ▶ All safety devices, lights, horn, limits, reverse lights and beeper, safety belt.

Report any faults and isolate the Telescopic Handler

Report any faults to your supervisor, as well as noting details in the logbook. After the fault is rectified, the repair should also be noted in the logbook so the Telescopic Handler can be returned to service.

Faulty should be moved to an isolation area and be tagged out, so that the Telescopic Handler is not used by mistake while waiting for service or repair.

Typical Cabin and Control Layout



1. Forward/Reverse Lever.
2. Dash (Fuel Gauge/Engine Tachometer w/Hour Meter/Temperature Gauge).
3. Assortment of control switches.
4. Hi/Low Range Selector Switch (2-speed drive).
5. Anti-tipping Computer.
8. Proportional Joystick Control.
10. Seat Adjustment.
11. Tilt Steering Column.
13. Attachment Selection Switch.



Typical Cabin and Control Layout



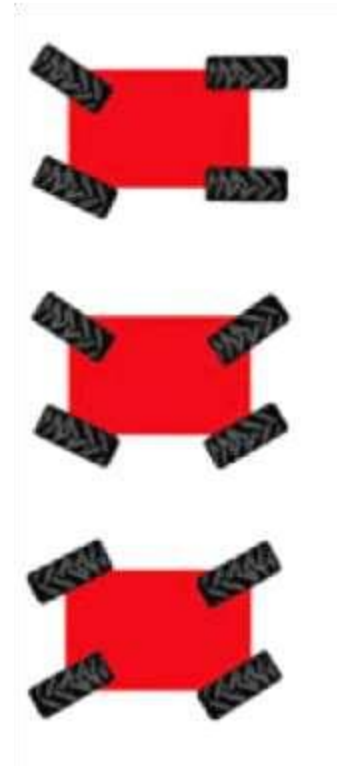
- 5. Load Moment Indicator
- 6. Frame (SWAY) Levelling Switch
- 7. LMI Override Button
- 8. Proportional Joystick Control
- 9. Stabilizer Raise/Lower Switch
- 12. Steering Mode Selector
- 13. Attachment Selection Switch
- 14. Level Bubble Indicator



Steering Modes

Most Telescopic Handlers have 3 steering modes for dealing with different situations.

- Front-axle steering – should be used when driving on roads, for maximum travelling speed, and wider turning circle.
- All-wheel steering allows high manoeuvrability in tight spaces. This is the most common mode you will use on site.
- Crab steering (diagonal steering) allows side offset to manoeuvre in tight areas or get in close to a structure.



To change modes, come to a complete stop, check all wheels are pointing straight ahead, put gears in neutral, change mode using the lever or switch, check mode is engaged then drive on.



PART 5 – SELECTING, REMOVING AND FITTING ATTACHMENTS

Most attachments are fitted using locking pins, coupling attachments or screws, nuts and bolts.

When fitting attachments, it is important for you to ensure the attachment is authorised by the manufacturer for use with the Telescopic Handler and that you have fitted the attachment using the manufacturer's instructions.

When changing attachments, you will need to:

- ▶ Park the Telescopic Handler on level ground.
- ▶ Collect and connect the attachment.
- ▶ Where applicable, set load computer for the attachment (if no attachment recognition feature) then check settings are correct.

Moving of the attachment before fitting it to the Telescopic Handler can be a manual handling risk. If you need to move the attachment, make sure you have help and use materials handling equipment such as trolleys or a forklift.

To change the width of fork tynes, tilt the carriage forward so the forks hang freely so they can be moved easily, as shown here.



Check and Test the Attachment

Once you have connected the attachment, check to make sure you have it fitted and secured it properly, so that it does not break or become unsafe during operation.

There should be a specific load/capacity chart for the attachment and Telescopic Handler combination, detailing the capabilities and load limits.

The ID plates fitted to the Telescopic Handler and Attachment should show compliance with AS1418.19 (2007)

Visual and Physical Inspection

- ▶ Is there any visible damage?
- ▶ Is the attachment sitting in the correct alignment?
- ▶ Is there unnecessary or unusual movement of the attachment?
- ▶ Check the hydraulic hoses are connected properly. Are there any bulges or leaks?
- ▶ Use the controls to manoeuvre the attachment. Does it move as you expected?

Attachment Combinations MODULE 1 - FORKS

Forks - Used for lifting palletised and other items.

Standard Fork	Bale Fork	Manure Fork
		

Checking Fork Attachments

Check for the following:

- ▶ Cracks in the heel of the fork arms.
- ▶ Load backrest is secure, and welds are not cracked.
- ▶ Forks are not bent or out of shape (due to overloading).

Working with Fork Attachments

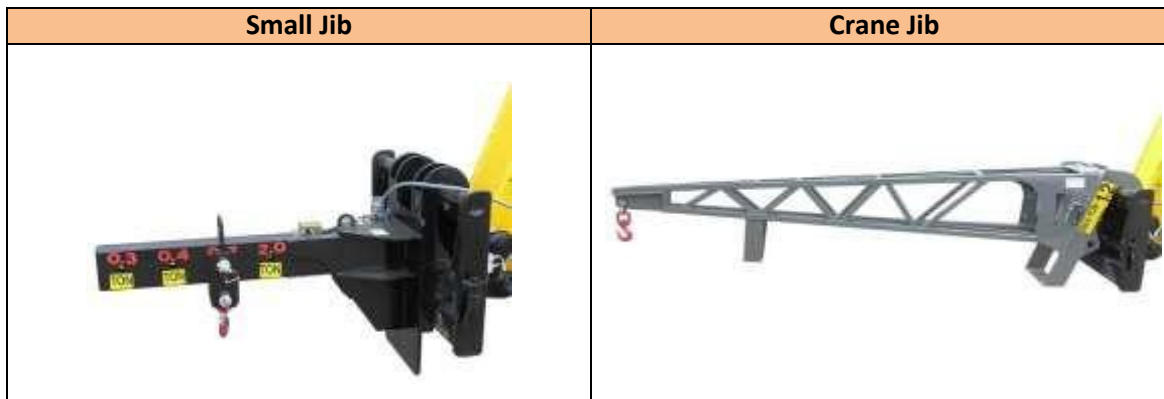
Forks are one of the most common attachments used with Telescopic Handlers. Here are a few things to remember whenever operating a Telescopic Handler fitted with forks:

- ▶ Always assess the weight of the load before attempting to lift it.
- ▶ Always make sure the forks are all the way under the load before lifting it.
- ▶ Tilt the forks back slightly to help stabilize the load before travelling.
- ▶ Travel with the load low at all times (just far enough off the ground to clear any obstructions).
- ▶ Get someone to guide you if travelling with a load that is obstructing your view, or travel in reverse.
- ▶ Take care when inserting or removing forks from the pallet. The tynes can easily grab or drag the pallet as they are thicker than forklift tynes.
- ▶ If possible, drive up to the pallet, then extend the boom to pick up the pallet, lift and tilt back then retract the boom before moving.
- ▶ This allows better vision for the operator to see what is happening, and the forks will stay level, even on rough ground.



Attachment Combination MODULE 2 – CRANE JIBS

Crane Jibs - are used to attach lifting gear to the Telescopic Handler allowing it to be used as a crane.



Crane jibs can be fitted to Telescopic Handlers to allow lifting and carrying of loads using slings. This is known as a freely suspended load. Stability can be severely affected by load swing if the operator does not do the following at all times:

- ✓ The attachment combination is compliant.
- ✓ Make sure the hook is directly over the load before lifting.
- ✓ Keep the load as low to the ground as possible when travelling.
- ✓ Travel slowly with the load, especially over bumpy ground.
- ✓ Do not travel up, down or across a slope more than 5 degrees with a freely suspended load, as the centre of gravity can shift suddenly from the load swinging and cause the Telescopic Handler to tip over.

Compliance Requirements – AS1418.19 (2007)

To use a Telescopic Handler to lift and carry a freely suspended load, the crane jib attachment and the combination with the Telescopic Handler shall comply with AS 1418.19. Instructions and an appropriate rated capacity chart shall be provided for each attachment. There should be an ID Plate fitted to the Telescopic Handler to provide confirmation.

European Standard EN 1459

Many Telescopic Handlers are designed to a European Standard, EN 1459 Safety of industrial trucks and self-propelled variable reach trucks. This standard specifies the safety requirements for Telescopic Handlers used to lift loads rigidly supported by forks or other means.

It explicitly excludes the design of machines used to lift freely suspended loads.

Other deficiencies in EN 1459 machines manufactured prior to 2008 include the absence of some operator safety devices, such as indicators, limiters and load charts. For example, some Telescopic Handlers have neither load limiters nor load indicators, while some have only load indicators, which can be readily switched off or over-ridden.

Significant differences exist with the methodology used to perform stability testing using EN1459 when compared to AS1418.19 – 2007. Typically, Telescopic Handlers which are tested to EN1459 requirements will not have the same rated capacities as those tested to AS1418.19 – 2007.

A Telescopic Handler designed to EN 1459 may be potentially unstable if used to pick-and-carry a freely suspended load and so may represent a risk to the operator or persons in the vicinity. As at 2016, there are many Telescopic Handlers that are only compliant to this standard still in use, so it is important to understand how to read compliance plates.

Selection, Inspection and use of Lifting Gear – Competency Requirements

There are limited circumstances where a person with no high-risk work licence for dogging (DG) can sling a load.

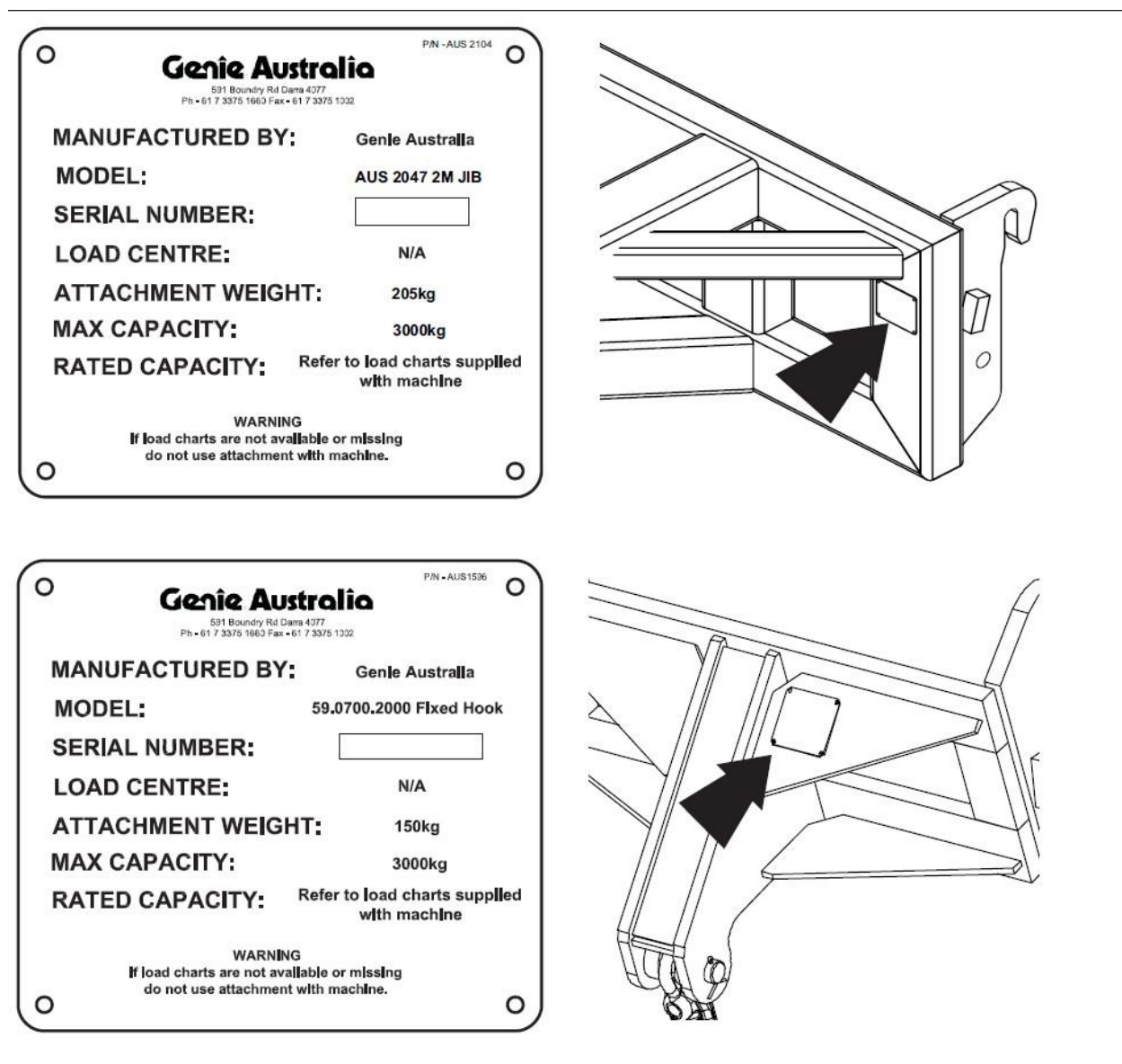
This is only where no judgement is required for slinging techniques, or the suitability and the condition of lifting gear because the following factors are predetermined:

- the weight of the load (or within a weight range) to be lifted is predetermined by a competent person (e.g. may be marked on the load)
- selection of the sling and slinging techniques for the load is predetermined by a competent person
- the condition of lifting gear is predetermined by a competent person
- the lifting points are predetermined by a competent person and marked on the load
- the load is lifted within the view of the operator at all times
- standard lifting procedures have been documented and signed-off by a competent person.

A person with a high risk work dogging (DG) licence must be used if these circumstances are not met.

If you are unsure, check with your WHS/OHS Regulator!

Examples of identification/compliance plates, and their location on the jib attachment.



Checking a crane jib attachment

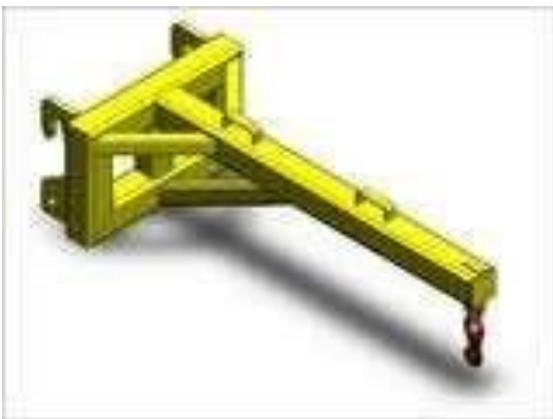
Authorised use will generally mean that there is a specific load chart for the attachment/Telescopic Handler combination and identification plates on the attachment and the Telescopic Handler. Telescopic Handlers may also be fitted with a rated capacity indicator and limiter (often referred to as a load computer), and 'attachment recognition' software. If so, program the correct attachment for recognition.

Before fitting the crane jib attachment you will need to check:

- ✓ For any cracked welded joints indicating metal fatigue.
- ✓ For any distortion or bends of the steel tube construction which could indicate overloading.
- ✓ Locking mechanism is in working order.
- ✓ Lifting hook and safety latch are not worn, bent or distorted
- ✓ SWL/identification plate fitted

After fitting the crane jib attachment, check:

- ✓ Locking mechanism is secure
- ✓ Lift, tilt and extend the boom to make sure the attachment is fitted and functioning properly



Quick hitch jib attachment

Checking a crane jib attachment

Hooks must be fitted with a functioning safety latch or device across the mouth of the hook, and be able to swivel freely, which prevents a chain, rope or shackle from twisting and will allow any twists to unwind.

Check the attachment frame and hook is not bent, cracked or distorted and all welds appear structurally sound.



Attaching slings to the load and the hook

NOTE: This task will generally require you to use a licensed dogman to sling the load and connect the load to the hook. If you are licensed, and dogging the load, then you will need another operator to control the Telescopic Handler.

Attach the lifting equipment to the load making sure that any sharp corners are packed to prevent any unnecessary damage to slings or the load. Some loads may have designated lifting points. Check that all shackles or eye bolts are secure.

Now, attach the lifting gear to the hook. If the sling eyes do not fit inside the hook, a rated shackle big enough to comfortably hang from the hook with enough space for the sling eyes or lifting rings should be used.

Hook position when lifting a load

Your dogman will guide you into position so that the hook is positioned above the centre of gravity of the load. This will help to keep the load from swinging out of control or slipping from the sling arrangement when it is lifted off the ground.

Conducting a test lift

A test lift is done by lifting the load just slightly off the ground or surface. Make sure all Telescopic Handler movements are controlled and smooth. Don't try to lift the load too fast, as you could break or stretch the slings.

If the load shifts to one side, you should be able to identify where the centre of gravity is. Lower the load, then have the dogger re-sling the load as required, then conduct another test lift. This process may need to be repeated especially if the load has an unusual shape or weight distribution.

Test lifts should be carried out to ensure that:

- ✓ Near capacity loads do not overload the Telescopic Handler.
- ✓ Loads of unusual shape or weight distribution are correctly slung.
- ✓ All lifting equipment is secured and fitted properly.

Shifting/travelling/mobiling the load

Monitor the movement of the load. If your view is obstructed, or the shape, size or weight of the load will make it difficult to stop it swinging, get your dogman to walk the load with a tagline and to warn you of any hazards in the path of the load.

Always follow the directions given by the person dogging the load. If at any point you are unsure of the directions being given to you, stop and confirm the instructions with the dogman

Jerky movements will cause the load to swing, increasing the risk of tipping or structural damage to the Telescopic Handler.

Keep the load as low as possible to the ground when travelling. Travel slowly, especially on bumpy ground.

DO NOT TRAVEL UP, DOWN or ACROSS a slope exceeding 5 degrees with a freely suspended load, as the centre of gravity can shift suddenly and cause the Telescopic Handler to tip over.

Note: If the jib has a powered winch (most have a fixed hook) to raise and lower the hook, be aware of 'boom deflection' when placing load back on the ground. This is the effect of the boom moving upwards when the weight of the load is released. This can be a hazard if there are overhead obstacles in the area.

Moving a suspended load with a dogman assisting



Typical Safety Decals fitted by manufacturers for use of crane jib attachments

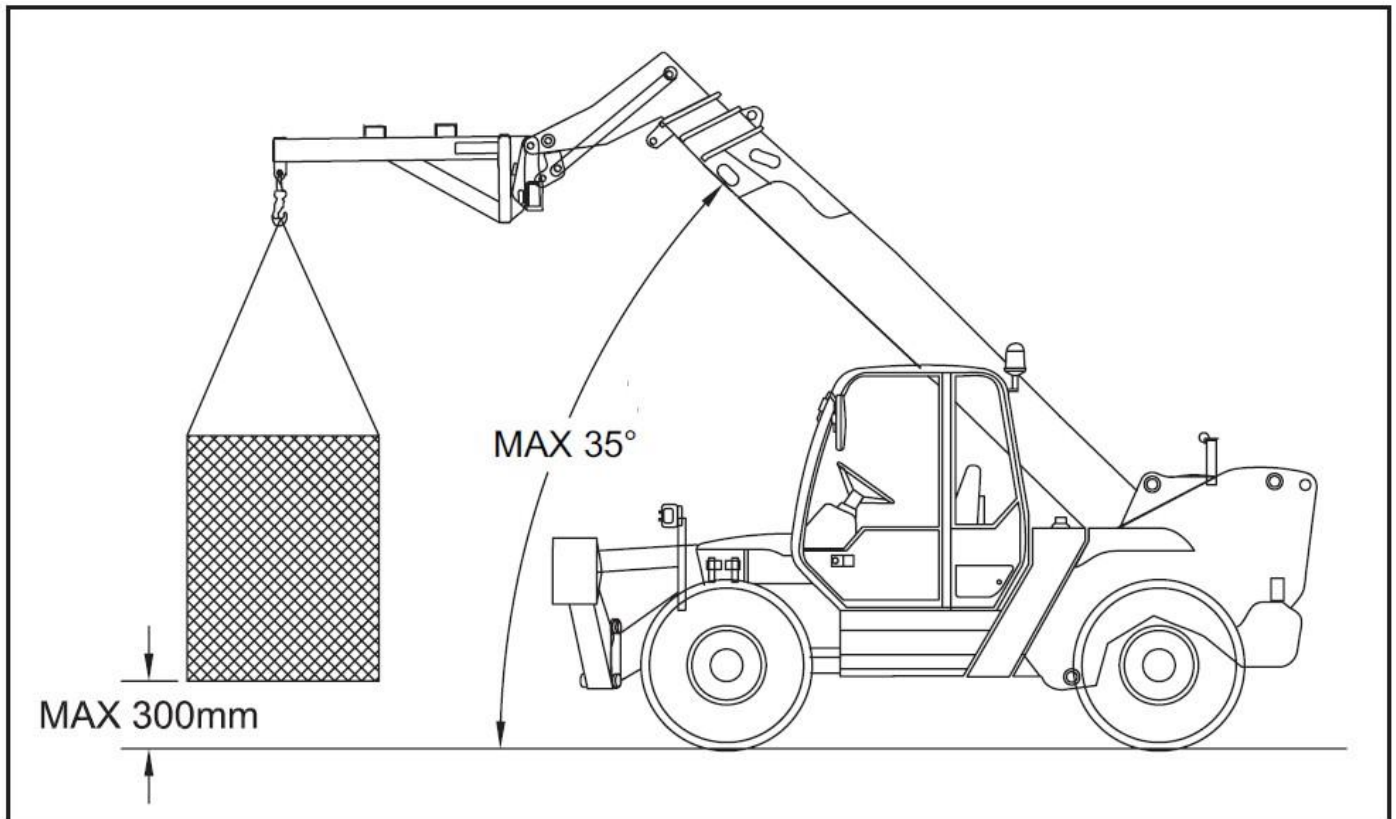


WARNING

Ensure the attachment is in proper working condition before use. Visually inspect the attachment for signs of overload, damage, cracking or corrosion.

IMPORTANT

When using a jib boom attachment maintain the jib in the horizontal position at all times.



The load chart supplied with the attachment specifies the operating conditions and rated capacity of the telehandler and attachment combination throughout the working range.

When attaching a load to the jib boom or fixed hook:

- Use correctly rated slings and proper rigging practice.
- Only connect the slings to the hook provided.
- Slings should be as short as practicable.

When picking up the load:

- Ensure that the boom is retracted and lowered close to the ground.
- Raise the boom until the load is clear of the ground (do not raise the load above 300 mm clear of the ground).
- Check the stability of the machine and load before travelling.

Communications Equipment and Techniques

When lifting and travelling a freely suspended load, you will be working with a dogman to help you connect slings to the load, direct the load and land it. You may also need to share information about the materials being lifted and moved.

Dogger's must give Telescopic Handler operators clear signals when directing movements. The noise of the Telescopic Handler motor, general site noise, and distortion over the radio can make it difficult to hear directions.

Two Way Radios

The following are the standard directions for crane/Telescopic Handler operators:

Hook movement	'Rope up' and 'Rope down'.
Boom movement	'Boom up' and 'Boom down', 'Boom extend' and 'Boom retract' or 'Tele in' and 'Tele out'. The word 'jib & luff' are also commonly used.
Slewing	'Slew left' and 'Slew right'.
OK to raise	'All clear'.
Do not move	'Stop'.

The dogman should speak clearly and say the name of the part of the Telescopic Handler to be moved first – then the direction of movement.










Repeat the instruction so there is no misunderstanding – “Boom up, Boom up”

Hand signals can also be used if there is no radio available.

Hand Signals





Hand signals should be used only when the Telescopic Handler operator is in direct view of the dogger.

Commonly used hand signals include:

HAND SIGNALS			
Motion	Signal	Motion	Signal
Hoisting Raise		Hoisting Lower	
Luffing Boom Up		Luffing Boom Down	
Slewing Right		Slewing Left	
Jib/Trolley Out; Telescoping Boom Extend		Jib/Trolley In; Telescoping Boom Retract	
Stop			
Creep Speed: Appropriate hand signal for motion with hand opening and closing			

Attachment Combinations MODULE 3 - BUCKETS

Buckets - There are a wide variety of multipurpose or specific purpose buckets, including:

Rock Bucket	Sifting Bucket
	
Silage Bucket	Grapple Bucket
	

Checking Bucket Attachments

Check for the following:

- ▶ Damage or wear to the blade or teeth of the bucket.
- ▶ Missing teeth.
- ▶ Missing parts.
- ▶ Lubrication at grease and pivot points.



Working with Bucket Attachments

When using the Telescopic Handler for earthmoving works keep these things in mind:

- ▶ Always assess the materials to be shifted.
- ▶ Check the path of movement to make sure you have adequate space to shift the materials.
- ▶ Avoid overloading the bucket or trying to carry too much material in a single run.
- ▶ Make sure you know the exact location of the driver whenever loading material into trucks.



- ▶ When driving into large piles of dirt or sand, do not extend the boom out to try and speed up operation.
- ▶ This only damages the machine and attachments over time, as you extend a Telescopic Handler horizontally it starts to de-rate dramatically losing its maximum capacity capabilities.
- ▶ The boom should be fully retracted at all times when moving into piles, this will result in less stress on the machine.

Levelling techniques when using buckets



Levelling techniques are used to smooth, spread or level materials on the worksite.

Levelling is done by moving the blade to a pre-determined degree and level.

Back blading with a Telescopic Handler can cause damage to the machines and bucket attachments over time, due to operators extending too far horizontally and putting too much pressure on the boom and tilt ram.

Other types of machines may be more suitable for back blading when levelling.

Basic calculations

The most common load calculations will be for area and volume (for bucket attachments) and total loads on pallets or stillage's (fork attachments).

These are simple formulas to remember.

Area = length x width (in square metres or m²)

For example, a section 4m wide and 20m long would have the following area:
Area = 4m x 20m = 80m²

The other common calculation is for volume. This is calculated by multiplying length x width x depth or height. That is, depth if it is a hole or height if it is a pile.

Volume = length x width x depth (in cubic metres or m³)

For example, a trench 20m long, 4m wide and 0.5m deep would be calculated in the following manner:
Volume = 20m x 4m x 0.5m = 40m³

Calculating the weight (mass) of a load

Calculating the weight of the load is important to ensure your Telescopic Handler is able to lift the load.

Sometimes you will know the weight of the load because it will be on delivery dockets or load information sheets.



If you are unsure of the weight of the load, attempt to calculate the weight. For example, 40 bags of concrete weighing 20kg each on a pallet.

$40 \times 20 = 800\text{kg} + 60\text{kg}$ (pallet weight) = total load of 860kg.

Always compare your calculation with someone else's before attempting to lift the load.

If you are unsure of the weight and cannot calculate or approximate the weight of the load, do not lift it.

To calculate capacity of a bucket attachment, the formula is:

Bucket length x height x width divided by 2, in cubic metres.

This is usually taken to one decimal place but rounded down to ensure the bucket is not overloaded.

For example, 0.43 cubic metres would be rounded down to 0.4 cubic metres.

This formula gives a relatively accurate estimate of the capacity of the bucket.

Different materials will have variable characteristics.

For example, wet or dry, light or dense, or bulky.

Densities are expressed as tonnes per cubic metre (t/m^3).

There are 1000kg in a tonne, so multiply the tonne value by 1000. Machine safe work loads are expressed in kilograms or tonnes.

Common material weights:

Material	Weight/Mass	Material	Weight/Mass
Bronze	8.5t / cubic metre	Lead	11.4t / cubic metre
Clay	1.9t / cubic metre	Lime (stone)	2.6t / cubic metre
Coal	864kg / cubic metre	Sand, beach, dry	2.0t / cubic metre
Copper	9.0t / cubic metre	Sand, beach, wet	2.3t / cubic metre
Earth	1.9t / cubic metre	Sand, river, wet	1.5t / cubic metre
Granite	2.6t / cubic metre	Shale	2.6t / cubic metre
Gypsum	2.3t / cubic metre	Terracotta	1.8t / cubic metre
Iron, ore	5.4t / cubic metre	Zinc	7.0t / cubic metre
Gravel, loose, dry	1.5t / cubic metre	Stone, crushed	1.6t / cubic metre
Gravel, with sand, natural	1.9t / cubic metre	Stone (common, generic)	2.5t / cubic metre
Mud, packed	1.9t / cubic metre	Trap rock, solid	2.8t / cubic metre
Mud, fluid	1.7t / cubic metre	Trap rock, broken	1.7t / cubic metre
Concrete	2.4t / cubic metre	Steel	7.85t/ cubic metre

Attachment Combination MODULE 4 – WORK PLATFORMS

Note: This combination requires the Telescopic Handler to meet EWP compliance requirements.

Checking Work Platform Attachments

- ▶ Self-closing gate is operational.
- ▶ Anchor points and basket is structurally sound.
- ▶ All controls are clearly marked and operational.
- ▶ Safety harnesses are not defective or damaged.



Working with Work Platform attachments

When operating the Telescopic Handler from the work platform, or operating the Telescopic Handler while other personnel/workers are in the work platform remember the following:

- ▶ Securely attach harness to an approved anchor point within the work platform.
- ▶ Never travel the Telescopic Handler while personnel/workers are up in the basket. Always lower the basket first.
- ▶ Deploy the stabilisers/outriggers (if fitted) to help maintain stability while personnel/workers are in the work platform.



Examples of other attachment types

Bin Lifter	Skips and buckets
A white, heavy-duty metal attachment for a telescopic handler, designed to lift and move large bins. It has a complex shape with multiple lifting points and a central pivot.	A black, heavy-duty metal attachment for a telescopic handler, designed to lift and move skips or buckets. It has a large, open bucket shape with a handle and a pivot point.
Grabs	Augers



PART 6 – OPERATE TELESCOPIC MATERIALS HANDLER

Identify and Apply Safe Operating Techniques

Consider:

- ▶ The materials being handled and the task to be completed, and the type of attachment being used
- ▶ The time of day or night and weather conditions including high wind.
- ▶ Ground conditions such as uneven, wet/boggy or unstable ground.
- ▶ Any other site hazards.

Assess the load to be shifted

Operators must operate their machines within safe working limits. Each machine will have a load chart inside the cab of the vehicle, which will show you the Telescopic Handlers rated capacity at varying operating radius.

Exceeding load chart limits will cause damage to attachments or machine structures, and in a lot of instances could cause the Telescopic Handler to tip forwards or rollover sideways!

DO NOT LIFT THE LOAD IF YOU CANNOT DETERMINE THE WEIGHT OF IT.

Load Moment Indicators

On most Telescopic Handlers, a load light system will be fitted to identify load capabilities when lifting or extending the boom with a load on.

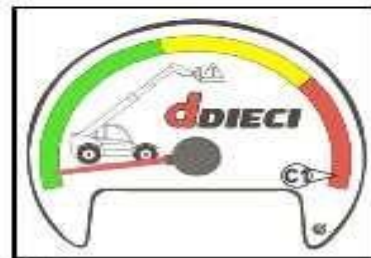
This system consists of a traffic light arrangement in front of the windscreen, or on the dashboard in the cabin.

- ▶ A **green** light shows that the boom is from 0 to 80% of lifting capacity – Safe Zone
- ▶ An **orange** light shows the boom is from 80% to 90% of lifting capacity – Use caution if still lifting or extending the boom.
- ▶ A **red** light shows the boom is from 90% to maximum 100% of lifting capacity. The machine has reached its 'Operational Cut Out' because the load you are attempting to lift is beyond the capacity of the boom operating length or angle.
- ▶ **Refer to the load chart for the lifting capacity of the Telescopic Handler with attachment type fitted.**

Operators should always keep the load within the green or orange zones.



(Fig. 81/12)



(Fig. 82/12)

- ✓ When the last RED light is “ON” or the Limit indicator needle has reached maximum capacity.
- ✓ The machine should “CUT OUT” boom functions at Maximum 100% capacity as per load chart.
- ✓ Some machines allow functions to bring the load back into a “Safe Zone” (such as boom retract & boom raise).
- ✓ Other machines have a Boom Retract Button on the joystick, which retracts the load into a “Safe Zone” when the maximum 100% point has been reached.

All Telescopic Handlers have a “Safety Override” - this may be a spring-loaded switch or key that has to be turned and held when the maximum 100% point has been reached. This allows you to operate the joystick to bring the load back into a “Safe Zone” – retract the boom first, DO NOT lower the boom as this will increase the chance of tipping forward!



LOAD COMPUTERS

Load computers are increasingly being fitted to Telescopic Handlers.

Provided they are calibrated correctly and have attachment recognition, an operator can see at a glance all relevant information – boom angle, extension, load weight, stability triangle and remaining lift capacity.

Where these are fitted, there is much less risk of exceeding capacity from misreading a load chart.

Forward and reverse cameras are increasingly being fitted as a safety feature, so operator has vision on the screen when travelling.



Lifting and Placing Loads

Load Security

Loads that are tall but slim may need additional slings or suitable straps to hold them in place against the load backrest. Additional padding may also be needed around any sharp edges. Loads that contain multiple items could move during the shifting process.



Palletised items should be wrapped or secured in place to prevent items falling off the pallet while it is being shifted.



Lift and placing techniques

When approaching a load, it is necessary to judge your distance from the load correctly so that you are able to lift or move the load safely.

If you try to lift a load with the Telescopic Handler too far from the load, it increases the chances of you tipping the Telescopic Handler forwards.

Check ground conditions – Telescopic Handlers are heavy machines (anywhere from 5 tonne GVM and up)

If you are unsure, the ground should be checked by a competent person before setting up the Telescopic Handler. The Telescopic Handler could become unstable during operation if the ground is rough, uneven or soft. Backfilled trenches may not have compacted completely and are dangerous to set up the Telescopic Handler on.

Lifting and placing of loads should only be done on firm ground that resists sinking of the wheels or stabilisers (if fitted).

The boom must lift vertically, so on level ground or by using a frame/chassis levelling function (if fitted).

The Telescopic Handler should be stationary with the brake applied, for all "normal" lifts.

Do not move the Telescopic Handler when the load is more than 1 metre above ground, otherwise the machine will become

Unstable, and could tip forwards or sideways.



Consequences of an unsafe lift

You must also check the load bearing limits of suspended concrete floors, building roofs and landings if loads or equipment is going to be placed on them.

If you are working with somebody else to assist in placing the load and removing the forks, discuss how you will communicate and what signals will be used - before you start the lift.

Telescopic Handler joystick control when lifting and placing loads

Lifting and placing loads at height is one of the most critical parts of Telescopic Handler operation – moving the forks in and out of pallets, at different heights, without moving the machine takes practice and a greater understanding of the joystick movements and hydraulic flow of the machine you are operating.

On some machines, operating the joystick will cause the boom or carriage to respond immediately.

On some machines, there is a delay after operating the joystick before the boom or carriage moves or stops.

This can depend on the brand, model, age or design of the Telescopic Handler you are using.

It is best to get a feel for how the machine will respond before attempting any lifting or placing of loads, as you often need slow or fine movements to move the forks in or out of the pallet cleanly.

Smooth lifting and placing of loads will become easier as you master the joystick operation.

If you are an inexperienced operator, try the following process to improve your skills:

- Use an empty pallet and place it on top of a shipping container or truck bed
- Sit the Telescopic Handler approximately 1 – 2 metres back from the container or truck bed.
- Have the Telescopic Handler in neutral with the park brake on
- Extend the pallet forks in and retract out of the pallet without moving the machine

This process requires the operator to be careful and will ensure cleaner and safer operations.

Using a pallet with no material shows up any mistakes and limits the chance of damaging a load.

Once you have mastered this height, gradually use higher elevations to give yourself greater confidence and better performance, which will help if you need to drive bigger units and need to lift to higher points.

Shifting or Mobiling Loads

Keep the load low to the ground and the boom retracted for maximum stability.

Do not drive with the boom raised, even with no load.

Telescopic Handlers should always be driven with the boom lowered to ensure that the centre of gravity of the machine and the load is as low as possible. Driving with the boom raised should never be considered as "normal" practice.

Travel at a speed where you can keep the load in control at all times and appropriate to the conditions of the site.

Use a spotter to guide you if travelling with a load that is obstructing your view, or travel in reverse.

Make sure all Telescopic Handler movements are controlled and smooth.

Check the operating safety decals before travelling down a slope with a load. The load should usually be facing uphill, meaning you will need to travel in reverse down a slope. This so the load does not slide off, or cause potential instability to the Telescopic Handler.

PART 7 – USING TELESCOPIC HANDLERS FITTED WITH STABILISERS

Stabilisers (sometimes called outriggers) are used to keep the machine stable during lifting operations, and increase the lifting capacity of the machine

Stabilisers can be used with suitable packing to help distribute the weight of the Telescopic Handler and load on softer ground.



The stabilisers need to be fully extended to bring the tyres off the ground, or extended to make the machine level (in accordance with the manufacturer's specifications).

Never set the outriggers while the boom is elevated, this can cause major instability, especially if it is loaded.

Remember to avoid soft ground, sloping surfaces or other conditions that may affect the stability of the machine.

Packing

There are different kinds and sizes of packing available:

- ▶ Steel plates or suitable hardwood timber pads.
- ▶ Approved plastic pads – easiest to use and best for purpose.



Ground bearing pressure

Different ground and soil types have different load bearing pressures depending on how firm or dense they are.

Soil Type	Load Bearing Pressure (tonnes p/m ²)
Soft clay or loam	10
Ordinary clay and dry sand mixed with clay	20
Dry sand and dry clay	30
Hard clay and firm coarse sand	40
Firm coarse sand and gravel	50
Shale rock and sandstone	80
Hard rock	200

When setting up in an area where the ground or soil value cannot be identified (e.g. on a bitumen or concrete road) you should:

- ▶ Check to see if the tyres/stabilisers sink into the ground before lifting.
- ▶ Make sure the tyres/stabilisers are constantly checked and repacked with more packing if necessary.
- ▶ Have a suitably qualified engineer check and sign off if you do not have the capability to determine whether the ground or structure being lifted onto can support the Telescopic Handler and/or load



PART 8 – DRIVING TELESCOPIC HANDLERS ON PUBLIC ROADS

It is possible to drive the Telescopic Handler on the road over short distances if it has a conditional registration.

The Telescopic Handler is not able to travel at normal road speeds, so a pilot vehicle is often used to make the trip safer.

You will also need to follow any site vehicle movement plans and traffic management plans.

If you are travelling the Telescopic Handler on the road, you will also need to:

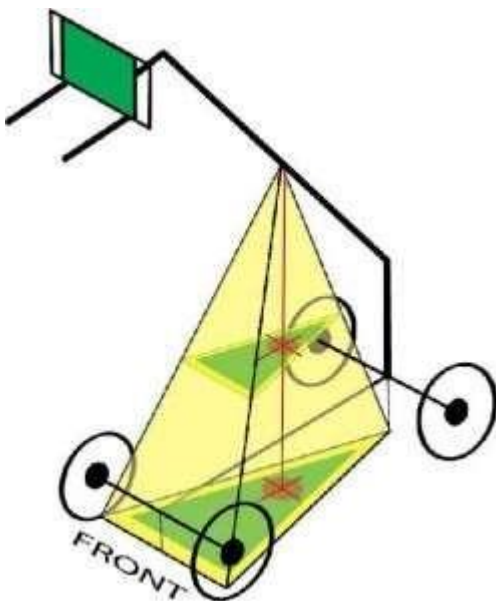
- ▶ Secure the attachment first.
- ▶ Drive in travel mode/road mode. (use front wheel steering, boom controls locked out)
- ▶ Obey all road rules and any permit conditions.
- ▶ Make sure you the correct class driver licence (check your state's requirements).

If you need to move the Telescopic Handler over a long distance, floating the machine is a better choice.

PART 9 – STABILITY TRIANGLE AND LOAD CHARTS

It is very easy to forget about the safe working loads and basic principles of using a Telescopic Handler when working on a busy site.

The Stability Triangle shown below has been developed to show where a Telescopic Handler is at its least stable. It is a triangle between the two front support points (tyres or outriggers) and the rear axle pivot.



The green area within the triangle is the safest area (boom lowered) with stability being limited once boom is raised into the yellow area.

You may be thinking 'A Telescopic Handler has four wheels, so why a triangle?' The reason why a triangle is used rather than a rectangle is because of the rear-pivoting configuration of the chassis.

The red dot shows where the centre of gravity is when the machine is in operation.

When the centre of gravity of the Telescopic Handler and load moves past the line between the two front support points, the machine WILL tip forward.

If the centre of gravity moves left or right of the triangle, the machine WILL tip sideways.

Some of the causes of tipping are - lifting the load/boom on unlevel ground, lifting an unbalanced or swinging load, high cross winds.

Telescopic Handlers are all-terrain machines for travelling, but they can only lift loads on essentially flat ground (usually with a limit of 5 degrees).

While on flat ground, the centre of gravity moves forwards from near the geometric centre of the machine (dependent on the boom extension, boom angle, and load).

As the boom is raised, the centre of gravity moves backwards, and when on a forward rising slope the centre of gravity moves further back, minimising the lateral slope. The further backwards the centre of gravity shifts, the more unstable the Telescopic Handler becomes.

Points to remember:

- ✓ Always check the gradient on site prior to lifting a load and be sure of load weight being lifted.
- ✓ Never lift anything unless you are 100% certain that it is safe to do so – check load chart, and monitor load computer or LMI.
- ✓ Always read the operator manuals and ensure the tyres are properly inflated.

Even with a load management system with all the relevant data, an operator, without a good understanding of movements and their interaction and the movement of the centre of gravity with load, can have trouble understanding where the 'point of no return' is.

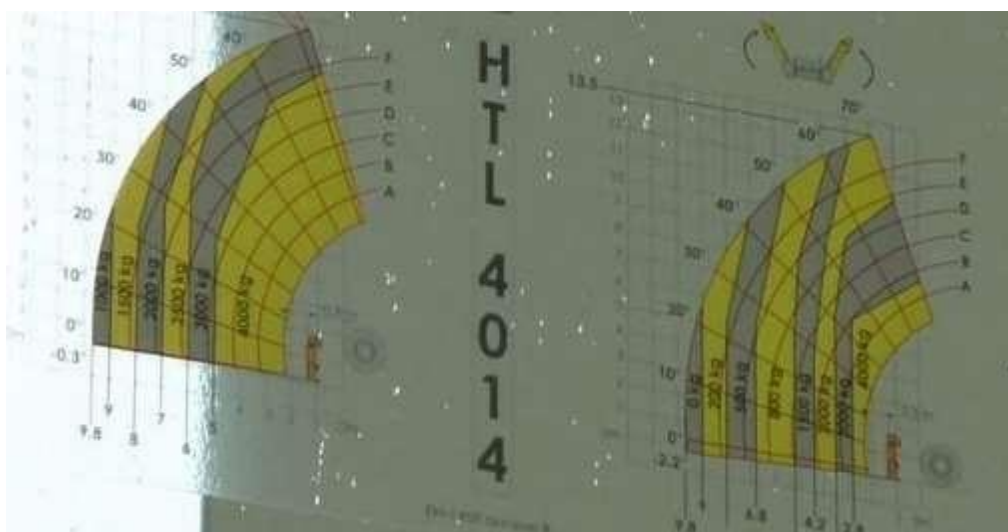
In short, with the boom angle at 0 degrees, regardless of the boom extension and load, a lateral slope (side tilt) of 30+ degrees could be tolerated before tipping the machines over onto its side; but at maximum boom angle, and maximum extension, with maximum allowable load and a backward slope of 20 degrees, the Telescopic Handler will topple sideways with as little as 0.1-degree lateral slope.

LOAD CHARTS

The machine should have a load chart inside the cab. This shows you the Telescopic Handlers rated capacity at varying operating radius (height and boom length).

These charts provide you with the capacity of the Telescopic Handler in different configurations (e.g. with stabilisers deployed or 'on rubber', boom extensions and lifting heights).

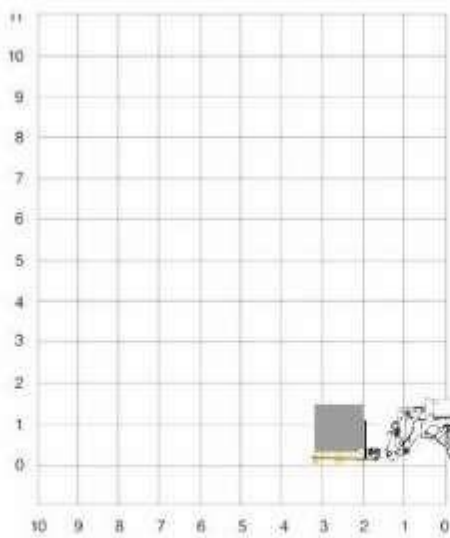
There should be a separate chart for each attachment the Telescopic Handler is rated for – lifting capacity will vary depending on which attachment is in use.



The chart will show distance from front wheels in metres, and height from ground in metres.

You will need to know this information to calculate a safe lift – also the load weight attempting to be lifted. Make sure you are looking at the right chart for the attachment you are using.

**Y Axis -
Vertical**



How Load Charts Work

X Axis - Horizontal

Example load chart only

The load chart capability is measured on these conditions: machine being on level ground with correct tyre pressure and a balanced load.

For lifting on ground up to 5 degrees slope, long, wide or unbalanced loads, reduce the lifting capacity as a safety factor.

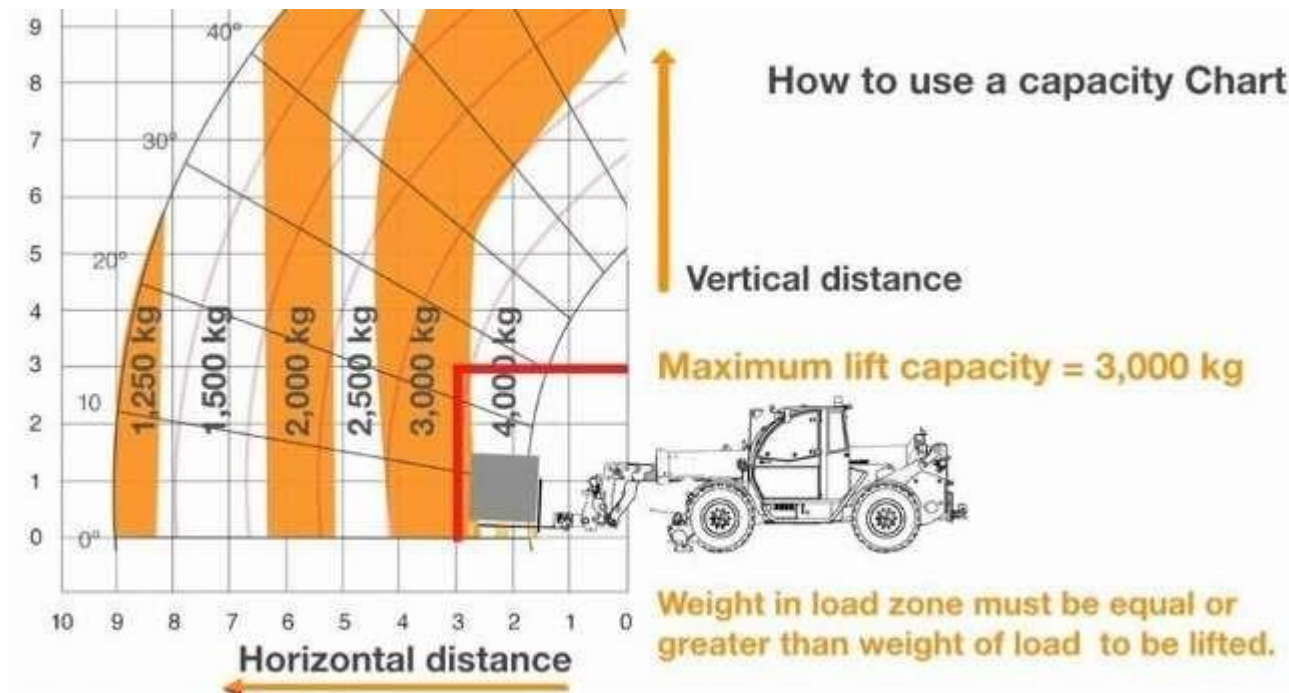


Example height and distance for lift – 3m from the ground, and 3m from front wheels.

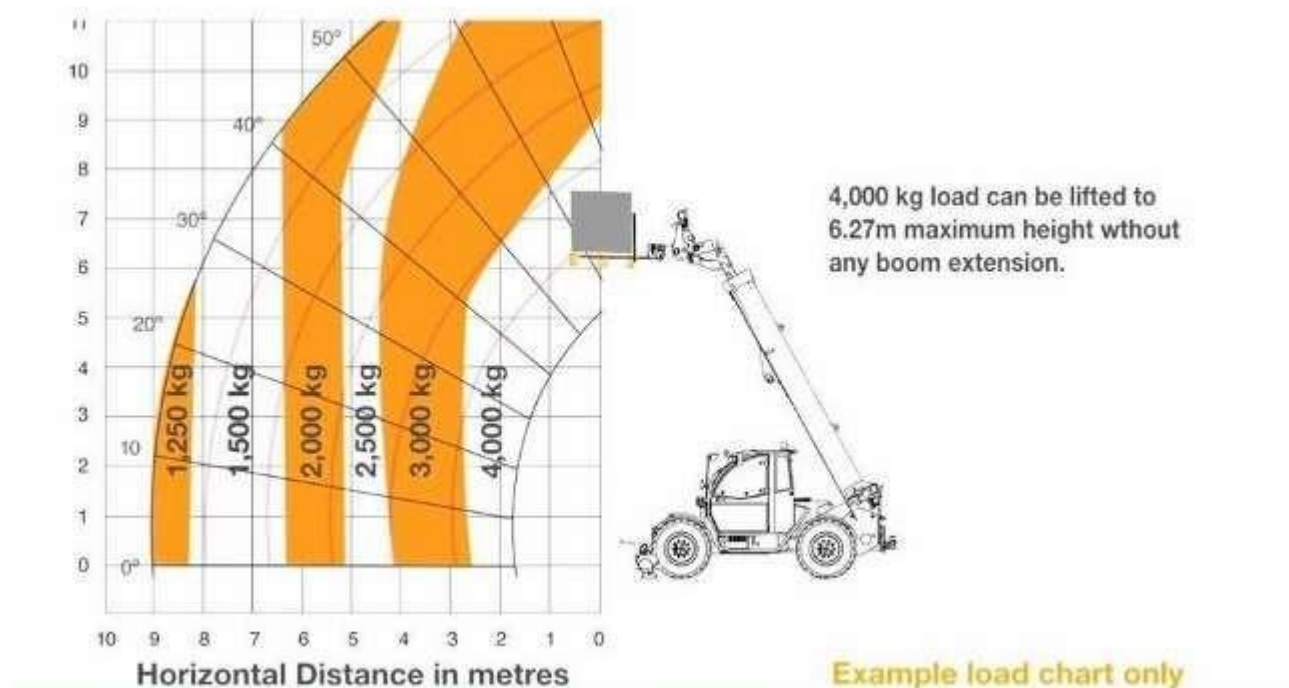


Follow the horizontal and vertical distances on the chart. Where the lines intersect is your safe lifting capacity.

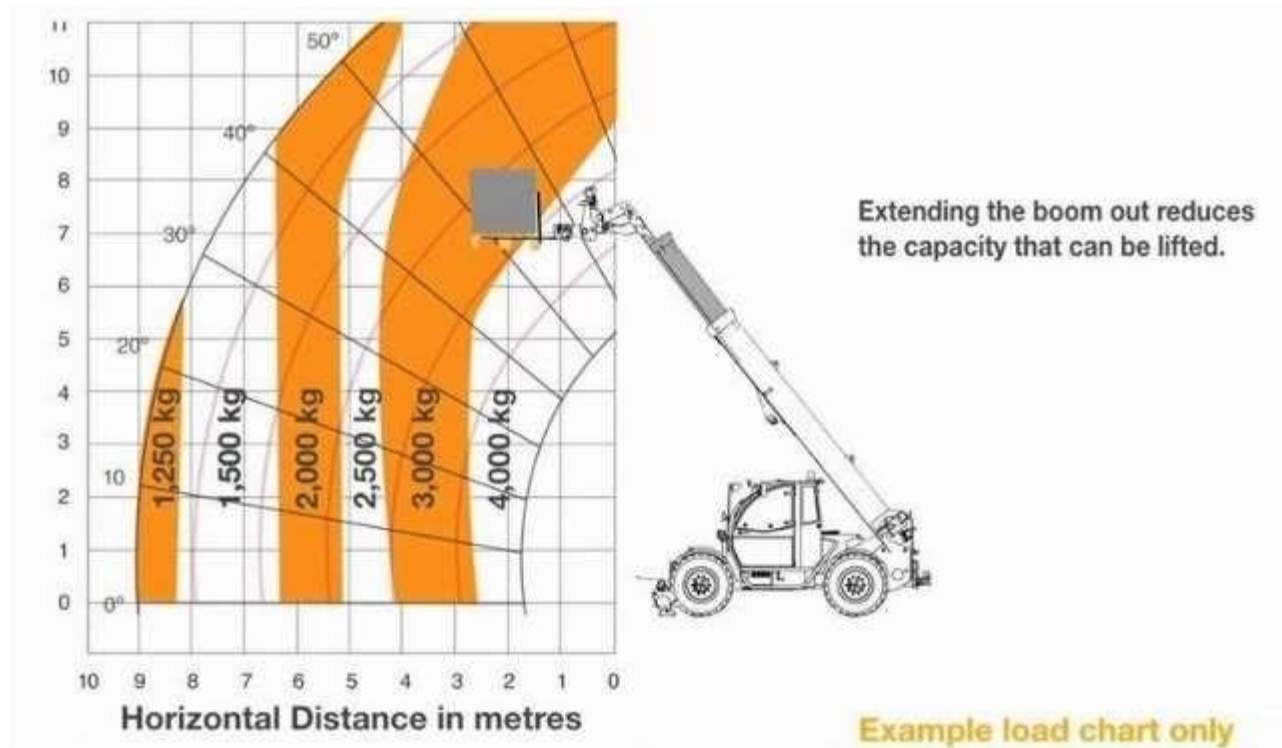
Note: If lines intersect between capacity zones, use the lower rating.



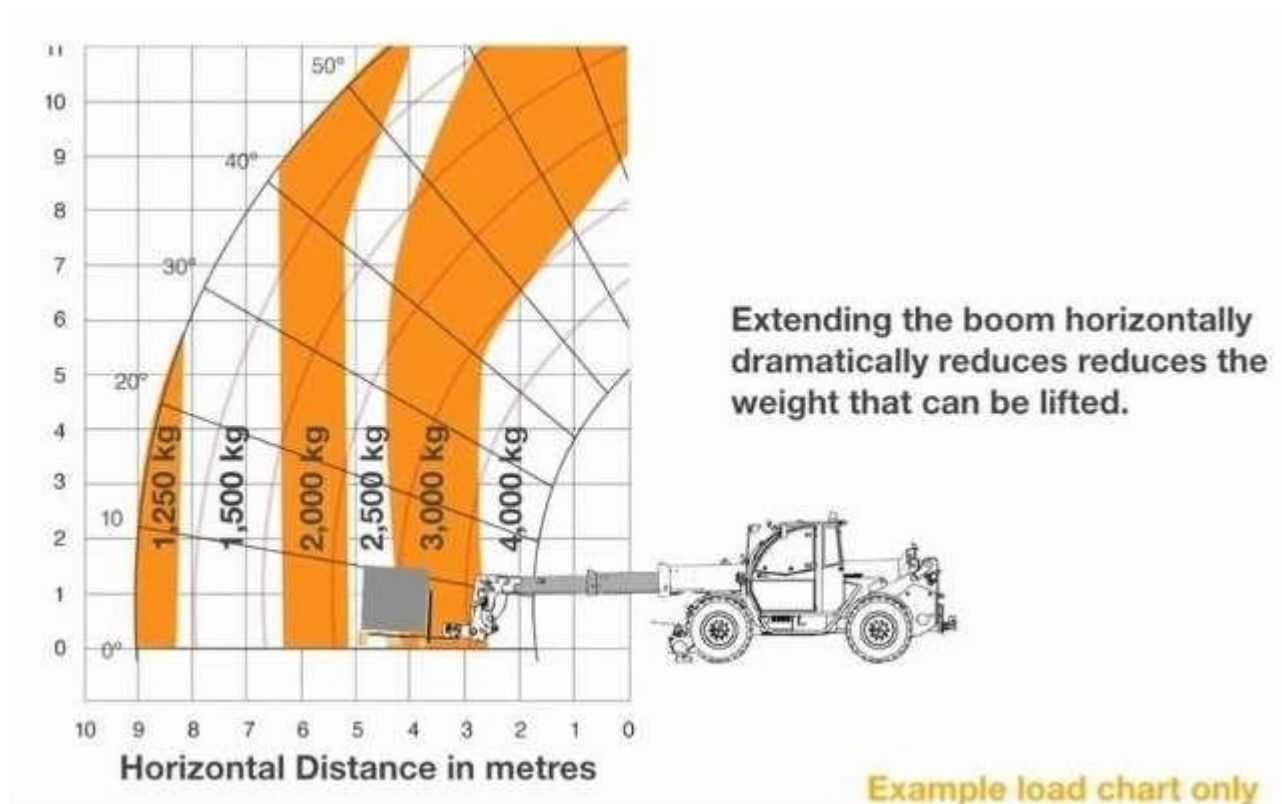
The machines highest lifting capacity is with no boom section extended.



Extending the boom out will reduce the lifting capacity.

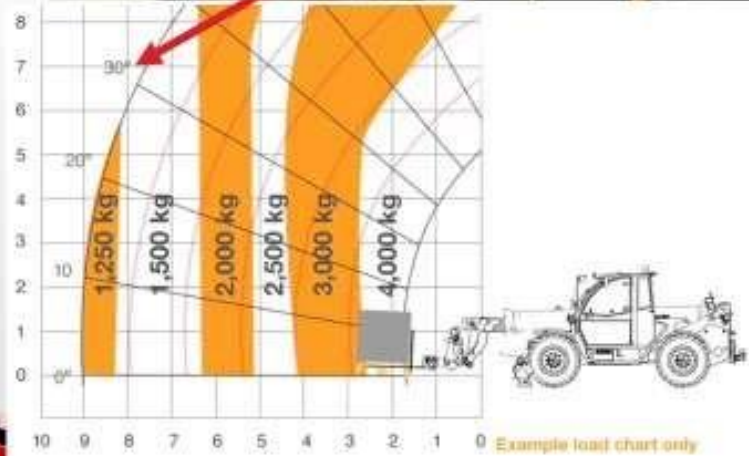


Extending boom horizontally quickly reduces the lifting capacity, as the CG is moving forward.



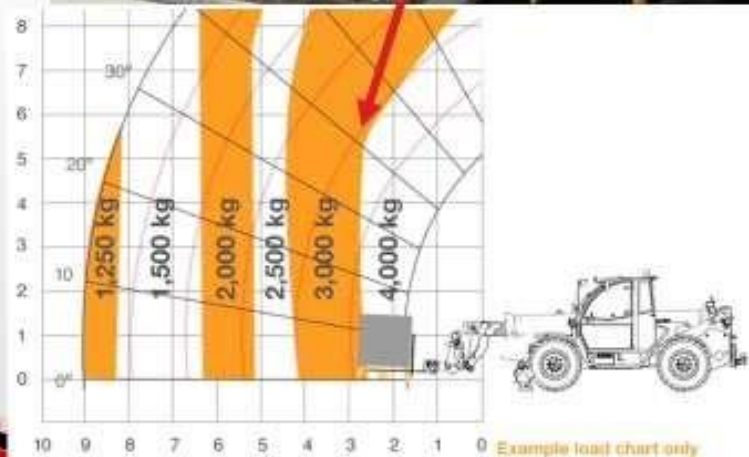
LOAD CHARTS

Boom angle indicator shows boom angle in relation to the ground.



LOAD CHARTS

As boom extends, letters or numbers show the distance out as per each division arc on the load chart.



PART 10 – SHUT DOWN AND SECURE THE TELESCOPIC HANDLER

When you are finished working with the Telescopic Handler, park-up procedures will include:

- ▶ Stopping on flat level surface in a safe area, keeping clear of other plant and equipment that is working in the area, access points and excavations.
- ▶ Locks and brakes are applied.
- ▶ Retracting and lowering boom and attachment to ground level.

Conduct Post Operational Checks

Shutdown procedures also include inspecting the Telescopic Handler to find any faults or problems that might have happened during the day.

Follow a similar process to pre-start – visual checking, looking for anything broken, fluid leaking or damaged.

Post operational checks also need to be done to make sure the Telescopic Handler is ready for the next operator.

If any faults are found, record in the log book, isolate/tag the machine and report to your supervisor.

Preparing the Telescopic Handler for relocation

Once Telescopic Handler operations are completed at a work site, it may be necessary to prepare it for transportation to another location, or back to the hire yard. On most sites it is necessary to clean the machine thoroughly before transport offsite.

Attachments should be removed, cleaned and stored on a pallet for transport.

Once on the back of a float, the Telescopic Handler must be tied down using approved tie down points to ensure the Telescopic Handler arrives at the next location safely. NOTE: This task is normally performed by the transport driver

PART 11 – CONDUCT HOUSEKEEPING ACTIVITIES AND SECURE THE WORKSITE

Clean up work area

Once your work tasks have been completed you will need to ensure that your work area is properly cleaned.

Any hazard controls that are no longer required should be removed from the work area (e.g. removal of temporary fences/barricades and signage).

Place any waste materials in the bins provided; recycle materials (where possible) in line with the site Environmental Management Plans or Waste Disposal Plans.

All sites will require that any work done with fluids be conducted in a controlled environment that has specific procedures to keep the fluids within that area. Commonly refueling and servicing are done in these areas.

ALWAYS REMEMBER - with fluid and material disposal, is not to pour the fluids onto the ground or into water way and never just throw other materials into general waste collection areas.

Always follow the correct disposal procedures outlined in site waste disposal and management plans.