Training Standard

Telescopic handler: all sizes including 360 slew (novice)

Learning outcomes Including additional guidance to support training delivery and final assessment *The delegate will be able to:*
explain the factors that help maintain a safe working environment in the construction industry, and their responsibilities as a telescopic handler operator *Delivery to include*: • why the industry has many hazards and why safe working practices must be adopted and maintained • why personal health and safety is not just physical injury and can include the effects of noise and vibration. All of which can lead to lost time, lost income, expense for the employer, fines, custodial sentences amongst others • Legislation and regulations including Health & Safety at Work Act 1974, Provision and Use of Work Equipment Regulations (PUWER), Management of Health and Safety of Work (MHSW) Regulations, Construction (Design & Management) Regulations (CDM), Vibration at Work Regulations, Road Traffic Act, HSG144, LOLER, HSG47, L117 in accordance with risk assessments, method statements, codes of practice and other relevant legislation, regulations, and industry good practice • operators' moral obligations, legal obligations, and environmental obligations • reporting structures, the importance of good communication on site (colleagues, management, and other workers on site) • previous incidences involving relevant plant and pedestrians • working with other related roles for example, marshallers, supervisors, other plant operatives, other occupations, and support workers *Assessment criteria:* • identify common hazards on a construction site • explain safe working practices relevant to the role of the telescopic handler operator • explain personal health and safety relevant to the role of telescopic handler operator • identify aspects of legislation, regulations, and industry good practice relevant to the role of telescopic handler operator • describe reporting structures and the importance of good communication on site • explain the responsibilities of a telescopic handler operator
identify and extract information from the manufacturers' handbook/operator's manual, and other information sources including digital *Delivery to include*: • use of the operator's manual (for the specific machine) during the practical elements of training to identify key preparation, operational and safety aspects of the machine • types of information sources including machine control systems *Assessment criteria:*

- identify and extract key elements for the preparation and safe use of the machine using various sources

locate and identify the major components, signs and decals and all controls of the telescopic handler and explain their functions

Delivery to include:

- the purpose of principal components, the basic construction, controls, and terminology
- how correct and sympathetic use of the controls can ensure efficiency and safety of the machine and help prolong machine life by reducing wear and tear
- purposes of Roll Over Protection Systems (ROPS) and Falling Objects Protection Systems (FOPS) and other protection systems

Assessment criteria:

- identify and explain the function of all controls and warning systems
- explain why the correct and sympathetic use of controls aids efficiency, longevity, and safety
- state the purposes of ROPS and FOPS and other protection systems
- locate and identify the major components, signs, decals, and controls of the machine

conduct all pre-operational checks in accordance with manufacturers and legislative requirements

Delivery to include:

- complete all pre-start and running checks before any activity takes place, including visual checks for damage, functionality, and effectiveness
- checking all componentry systems are fully functional, including mechanical, hydraulic, pneumatic, electrical and electronic
- replenish fuels, fluids and lubricants, and undertake grease-based lubrication activities
- manufacturers periodic checks and operator level maintenance requirements
- defect reporting requirements
- carry out routine adjustments
- safety systems functions including emergency stop
- health and safety requirements when undertaking basic maintenance activities including personal protection equipment (PPE)
- check condition and function of seatbelt and any other restraining equipment
- check condition and function of any lighting and warning systems
- requirements for dealing with fluid spills including prevention and clean-up methods

Assessment requirements:

- conduct all pre-operational checks as above in accordance with manufacturer guidance and legislative requirements (note: verbal description to the instructor of specific pre-start checks will be acceptable if the machine is hot where they cannot be done safely, such as engine fluids) - *this should be observed during practical assessment*
- explain the procedure for defect reporting and why it's important

identify and maintain personal protective equipment (PPE) and appropriate safety control equipment for a telescopic handler operator use

Delivery to include:

- what safety control equipment/PPE should be worn/used for machine operations and include the following: suitable safety footwear, ear defenders, face/eye protection, dust mask, suitable gloves, overalls, hard hat, respiratory protective equipment (RPE), protective clothing
- appropriate use of local exhaust ventilation (LEV), for example, in confined spaces
- why weather conditions, including heat and cold, can determine what PPE is worn when using specific machine and the personal effects of incorrect equipment

Assessment criteria:

- describe what forms of PPE and RPE must be worn for site operations
- explain why PPE and RPE must be worn for site operations
- give an example of when use of LEV would be appropriate
- state how severe weather can affect safety and health with insufficient equipment

safely get in to and out of the telescopic handler

Delivery to include:

- working at height requirements
- safe use of all hand holds and steps
- facing the machine when getting in to and out of the telescopic handler for operational and maintenance purposes
- effects of continually getting in to and out of the telescopic handler for example, fatigue, increased risk of falling.
- safe areas to get in to/out of the telescopic handler including but not limited to ground location, other vehicle movements.
- procedures for accessing the telescopic handler when carrying out adjustment and maintenance activities

Assessment criteria:

- explain the effects of not using correct procedures to get in and out of the machine including when carrying out adjustment and maintenance activities
- demonstrate the correct procedures as listed above – *this should be observed during practical activities*
- explain the areas for safely getting in and out of the telescopic handler

prepare the telescopic handler for movement

Delivery to include:

- use of seatbelts and other restraining equipment

- adjustment of seating position and mirrors
- checks on steering (including multi-directional steering modes), braking, transmission, loader components such as boom, extension and carriage tilt checks, loader control lock-out systems, stabilisers, chassis levelling, slew functions
- lateral and longitudinal stability aids check for example, inclinometer, chassis tilt mechanism (if fitted), rated capacity indicator (RCI) / longitudinal load moment indicator (LLMI) / load moment indicator (LMI) / load moment control (LMC) / limiters and how this information is supplied
- starting procedures inc. cold-starting procedures and isolation devices
- types of visibility aids and what factors can affect clear, all-round vision
- where and why effective vision, including mirror positioning is extremely important
- how and where issues can arise when vision is limited during operation
- warning beacons and other safety systems/lights are operable
- legislative requirements for travelling on the public highway
- carrying of passengers/non-authorised personnel
- how tyre condition, pressures, sizes, ratings and repairs can affect machine stability and safety

Assessment criteria:

- demonstrate that the seatbelt is worn correctly, and seating position and mirrors are adjusted correctly prior to any machine movement - *this should be observed during practical assessment*
- describe why the seat belt should be worn at all times
- carry out all pre-start activities and starting procedures including items such as isolation devices, cold-starting, adjustment of mirrors – *this should be observed during practical assessment*
- check all applicable warning lamps, safety and stability systems and visions systems including slew functions are in place, clear and functional - *this should be observed during practical assessment*
- conduct all-round visibility checks before moving away - *this should be observed during practical assessment*
- describe why effective vision is extremely important
- give an example of how and where issues can arise when vision is limited during operation
- conduct all chassis and loader component functional checks - *this should be observed during practical assessment*
- describe function and information of inclinometer, chassis tilt mechanism, rated capacity indicator (RCI) / longitudinal load moment indicator (LLMI) / load moment control (LMC) / limiters.
- wear the correct PPE - *this should be observed during practical assessment*
- describe the requirements and limitations for travelling on the public highway
- explain how tyre condition, pressures, sizes, ratings and repairs, can affect machine stability and safety
- check inclinometer (lateral stability) - *this should be observed during practical assessment*

travel and manoeuvre the telescopic handler across varying terrain and inclines, laden and unladen

Delivery to include:

- how travel speeds, gear selection and slew functions affect working efficiency, stability, safety, and emissions
- issues which can occur if departing from designated travel routes and work areas/restricted zones
- types of underground services and the effects of travelling loaded machines near to/over services
- effects of travelling close to embankments and trenches
- travelling over various types of terrain, replicating typical site-type surfaces (loaded and unloaded)
- travelling up, down on inclines (loaded and unloaded) including lateral and longitudinal stability
- how certain types of surfaces can affect traction, particularly on inclines
- machine configuration when travelling on steep inclines
- how travelling on uneven and uncompacted surfaces affect stability
- impact of changes to centre of gravity (loaded and unloaded) when travelling up, down and across inclines
- dangers of travelling across inclines
- effects of travelling with a raised boom
- load integrity and security whilst travelling
- giving way to loaded machines
- travelling with large surface-area loads and wide loads
- precautions and obstructions on travel routes including overhead utilities.
- regulative requirements for travelling near to or under overhead power lines
- awareness of other machines and workers

Assessment criteria:

- explain how travel speeds, gear selection and slew functions affect working efficiency, stability, safety, and emissions
- explain when the horn should be used
- describe issues which can occur if departing from designated travel routes and work areas/restricted zones.
- describe how certain types of surfaces can affect traction, particularly on inclines
- list the types of underground services and the effects of travelling near to/over services
- describe the effects of travelling close to embankments and trenches
- demonstrate safe travel over rough, undulating ground, steep inclines and level surfaces - *this should be observed during practical assessment*
- looking at the direction of travel and effective use of mirrors - *this should be observed during practical assessment*

- demonstrate how to travel up and down a gradient – *this should be observed during practical assessment*
- demonstrate how to stop and start on the gradient whilst travelling uphill – *this should be observed during practical assessment*
- demonstrate how to stop and start on the gradient whilst travelling downhill – *this should be observed during practical assessment*
- demonstrate how to reverse the telescopic handler in a straight line and through a restriction, both un-laden and laden – *this should be observed during practical assessment*
- explain how travelling with raised boom creates longitudinal instability

Assessment requirement:

- the slope must have an incline minimum of 15% (1:6.6) with sufficient manoeuvring area at the top, or a straight ramp with an up and down route with a flat area at the summit (at least two times length of the machine)
- the reversing exercise must be for a minimum 20 metres
- the restriction clearance for the reversing exercise must not be more than 300mm or 10% of the machine width (whichever is the greater) between the machine and the restriction sides

conduct all necessary safety checks at the loading and unloading areas

Delivery to include:

- safety checks that must be carried out to ensure the loading area and unloading area are clear of hazards
- loading and unloading in an area which is segregated from other activities including restricted zone requirements
- requirements for sufficient manoeuvring area for the machine with a load
- how different types of ground conditions may affect the stability to support the telescopic handler and load weight, to maintain machine stability
- communication requirements and methods with any other personnel involved including slinger/signallers
- working in hours of darkness and lighting requirements
- people/plant interface, procedures and dangers of allowing others near to a working machine
- collision mitigation systems

Assessment criteria:

- identify and use designated loading area entry and exit locations – *this should be observed during practical assessment*
- ensure loading areas are clear of hazards – *this should be observed during practical assessment*
- ensure ground conditions are suitable for loading and unloading activities - *this should be observed during practical assessment*
- ensure the integrity of restricted zones - *this should be observed during practical assessment*

- explain how to identify and confirm that there is sufficient manoeuvring area for the machine with a load
- establish communication methods with other personnel – *this should be observed during practical assessment* describe the issues of working in the hours of darkness and low lighting levels
- explain the importance of being aware of other machines, vehicles and workers
- explain the procedures and dangers of allowing others near to a working machine
- outline the function of collision mitigation systems

manoeuvre, prepare and configure the machine to pick up a range of loads (excluding suspended loads)

Delivery to include:

- the correct use and application of steering, transmission and braking controls
- the importance of maintaining good visibility
- how visibility is affected by a partially raised boom
- the correct use of all loader hydraulic controls including boom raise/lower, side shift applications (if fitted), extension and fork carriage tilt and any safety features
- correct machine configuration for different load types
- what is a lift plan and typical information detailed in the plan
- load charts, load centres/centres of gravity, lifting capacities relevant to reach and height
- use of stabilisers and levelling systems (if fitted)
- checking ground conditions to support the machine
- determining the total weight to be lifted for the height and reach
- methods of establishing weight of loads
- procedure of reporting when handling loads of unknown weight
- factors that can impact the lateral and longitudinal stability including with raised boom, overloading, ground, and levelling requirements
- the correct fork spacing to equally support loads
- requirements and restrictions with the use of working platforms including integrated and non-integrated types
- prior confirmation on where each load needs to be transported to and where to be placed
- how stabilisers increase stability
- aligning and entering accurately to prevent damage to a load
- why specific training is required for suspended loads

Assessment criteria:

- demonstrate the correct use and application of steering, transmission and braking controls – *this should be observed during practical assessment*
- explain the importance of maintaining good visibility
- demonstrate the correct machine configuration for different load types – *this should be observed during practical assessment*
- state the need for a lift plan and what typical information is contained within the plan

- explain the use of load charts and what information they provide
- explain the need to know the load centre and the centre of gravity of a load and the effect on safe lifting capacities
- demonstrate correct use of stabilisers and levelling systems - *this should be observed during practical assessment* (if fitted)
- explain methods of establishing weight of loads
- explain the procedures of reporting when handling loads of unknown weight
- explain the factors that can impact the lateral and longitudinal stability
- demonstrate the correct fork spacing to equally support loads – *this should be observed during practical assessment*
- explain the requirements and restrictions with the use of working platforms including integrated and non-integrated types
- travel to various locations for placing of pre-set loads – *this should be observed during practical assessment*
- demonstrate how to configure, set and prepare the machine to lift a range of loads including palleted, non-palleted, wide, heavy, large surface area and those that can be stacked – *this should be observed during practical assessment*
- demonstrate that all around visibility is maintained during manoeuvring activities – *this should be observed during practical assessment*
- check that ground conditions can support the machine's total weight for the working height and reach – *this should be observed during practical assessment*
- establish the weight of load against rated capacity charts for intended height and reach – *this should be observed during practical assessment*
- *explain how the pallet size can affect the load centre and safe lifting capacity*
- *explain why suspended loads should not be carried out unless additional training has been given*

lift and transfer fork mounted loads accurately and safely at different locations

Delivery to include:

- keeping within designated travel routes
- maintaining full observation
- procedures for travelling with large surface area-type loads
- executing full turns to the left and right
- lateral stability issues when cornering with a load
- procedures for stacking of loads
- lifting of unit-type loads including palleted and un-palleted
- undercutting when lifting and placing loads
- reasons for smooth use of all hydraulic controls, particularly at height
- factors that affect safe and effective transportation of loads
- handling of irregular shaped loads
- loading-out tower requirements
- factors and examples that determine where loads can and cannot be placed

- methods of communication, including radio protocol, hand signals and similar for unit loads
- use of stabilisers

Assessment criteria:

- keep within designated travel routes - *this should be observed during practical assessment*
- maintain full observation - *this should be observed during practical assessment*
- explain the process for the lifting of unit-type loads including palleted and un-palleted
- explain the undercutting when lifting and placing loads
- demonstrate undercutting when lifting and placing loads - *this should be observed during practical assessment*
- describe the reasons for smooth use of all hydraulic controls, particularly at height
- explain the factors that can affect the safe and effective transportation of loads
- explain the factors to be taken into account when handling irregular shaped loads
- explain loading-out tower requirements
- explain the factors and give examples that determine where loads can and cannot be placed
- explain methods of communication including radio protocol and hand signals for unit loads
- explain how large surface area loads can affect clear vision and what procedures should be followed
- align and enter accurately to prevent damage to a load – *this should be observed during practical assessment*
- demonstrate correct use of all stabilisers – *this should be observed during practical assessment*
- ensure travel speeds do not exceed terrain type, load type and clear of any route hazards – *this should be observed during practical assessment*
- lift 1 x load that is not less than 50% of machine rated capacity onto a loading-out tower – *this should be observed during practical assessment*
- retrieve a load at height (not less than 50% of machine rated capacity from a loading-out tower) and lower to ground level – *this should be observed during practical assessment*
- lift a load for travel and reverse with the load for a minimum of 20 metres – *this should be observed during practical assessment*
- place all loads accurately at given predetermined points – *this should be observed during practical assessment*
- stack 3 x loads of equal dimensions that are suitable for stacking – *this should be observed during practical assessment*
- de-stack 3 x stacked loads and place them next to each other on the ground – *this should be observed during practical assessment*
- lift a load weighing less than the machine lift capacity at full horizontal reach and place the load at ground level using the full horizontal reach of the machine – *this should be observed during practical assessment*
- follow given signals and instructions – *this should be observed during practical assessment*
- maintain machine stability and ensure safe parameters are not exceeded on a lift – *this should be observed during practical assessment*
- execute full turns to the left and right – *this should be observed during practical assessment*

• explain lateral stability issues when cornering with a load *Assessment requirement:* • when de-stacking 3 x loads, there must be no more than 75mm clearance between them • the loading-out tower must be at least 75% of the machine maximum working height for the load weight
place and remove loads from a vehicle *Delivery to include*: • different types of vehicle/trailers • vehicle capacities • weight distribution and sequence/positioning of loads • communication with vehicle driver • loading and unloading sequences • moving a load tight to the headboard • undercut loads when lifting and placing of loads • proximity hazards including ground hazards, overhead hazards and those on the transporting vehicle due to the condition of the vehicle bed • *loading procedures that prevent damage when placing/retrieving loads in close proximity to each other* *Assessment criteria:* • outline the different types of vehicle/trailers used to deliver loads to site • state how vehicle capacities are established and the importance of weight distribution for vehicle stability • establish communication and loading and unloading sequence with vehicle driver - *this should be observed during practical assessment* • demonstrate undercut of loads when lifting and placing loads – *this should be observed during practical assessment* • check for proximity hazards including ground hazards, overhead hazards and those on the transporting vehicle due to the condition of the vehicle bed – *this should be observed during practical assessment* • place 3 x loads of equal dimensions on to a vehicle bed that has a headboard, following required sequence – *this should be observed during practical assessment* • demonstrate loading tight up to the headboard – *this should be observed during practical assessment* • retrieve 3 pre-placed loads from a vehicle bed following the required sequence – *this should be observed during practical assessment* • load damage minimised when retrieving and placing loads - *this should be observed during practical assessment*
fit, adjust and remove attachments

Delivery to include:

- typical attachment types and function
- importance of limitations of certain attachments
- function, use and precautions for quick-hitch systems
- attachment and removal procedures including hydraulic systems
- machine configuration and positioning
- securing requirements and essential pre-use checks
- matching attachments with load commodity being lifted
- how the fitting of an attachment might affect the rated capacity of the lift truck and implication of extended load centres

Assessment criteria:

- describe the function, use and precautions for quick-hitch systems
- explain the importance of calculating the de-rated load centre and capacity of the truck with the attachment in use
- explain securing requirements and essential pre-use checks
- outline the types and function of various construction-based attachments
- explain why attachments need to be matched with commodity/load being lifted
- attach and detach a typical attachment to and from the boom-head following required procedures - *this should be observed during practical assessment*
- configure and position the machine for attaching/detaching activities – *this should be observed during practical assessment*
- secure the attachment and carry out all pre-use checks – *this should be observed during practical assessment*
- *explain how the rated capacity of the lift truck can be affected by fitting of an attachment and implication of extended load centres*

move loads using a 360° slew/rotating boom-type telescopic handler

Delivery to include:

- applications and use of slew/rotating boom type machines
- safe load indicators
- checks before picking up a load
- slewing controls, slew locks, tilt correction systems and precautions for use
- outrigger requirements, including ground pressures and configurations for slewing activities when rotating through 360 degrees
- signalling and visibility arrangements when slewing
- effects on load integrity and security and machine stability when slewing with loads

Assessment criteria:

- describe the applications and use of slew/rotating boom type machines

- explain how the safe load indicator functions regarding its handling capacity, and how audible and visual warnings are delivered when it is becoming, or has become, unstable.
- Identify load weight, load centre, height, and condition – *this should be observed during practical assessment.*
- identify and state the function of slewing controls, slew locks, tilt correction systems for lateral inclination, and precautions for use – *this should be observed during practical assessment.*
- explain outrigger requirements, including ground pressures and configurations, front, and rear of the chassis, for slewing activities when rotating through 360 degrees with the boom in any position.
- describe signalling and visibility arrangements when slewing
- describe the effects on load integrity and security and machine stability when slewing with loads
- configuring the machine to carry out slewing activities – this should be observed during practical assessment
- slew unit and suspended loads through 360 degrees – this should be observed during practical assessment
- slew loads whilst maintaining load and machine stability and security – this should be observed during practical assessment
- maintain visibility during load slewing including following given instructions – this should be observed during practical assessment

explain environmental considerations of machine use

Delivery to include:

- health and social reasons to reduce machine emissions
- government industry zero emission initiatives
- what 'tailpipe' emissions are caused by IC (diesel) engines
- air quality and the component gases of air
- how engine emissions, including particulate matter, affect air quality and the effects on human and environmental wellbeing
- measures to reduce emissions during operations including alternative/low emission fuels, fuel treatments and particulate filtration systems
- efficient use of the machine and when and how minimising engine use can aid air quality and fuel savings
- eco-friendly oils, fluids and lubricants
- fuel-saving techniques for specific item of plant
- appropriate disposal of waste
- spillage procedures

Assessment criteria:

- explain the health and social reasons for reducing machine emissions
- discuss government industry zero emission initiatives
- list two or more effects on human and environmental wellbeing as a result of engine emissions

- identify measures to reduce emissions on site
- explain appropriate disposal of waste
- explain spillage procedures
- describe the need to keep engine speed and load to a minimum whilst maintaining working efficiency

explain loading/unloading procedures for machine transportation

Delivery to include:

- procedures for preparing the machine for loading onto a transporter
- traction and surface preparation requirements
- understanding of agreed methods of communication between the plant operator and others
- working at height requirements when driving onto or off a transporter bed

Assessment criteria:

- describe the preparation required of both machine and transporter for loading and unloading of the machine
- explain the precautions to be taken when driving the machine onto and off the transporter bed
- state the methods of communication between the plant operator and others
- describe the dangers of and requirements for working at height when on the vehicle bed

carry out all end of work and shut down procedures

Delivery to include:

- types of safe locations, areas, and ground/terrain types where machine may be parked and should not be parked
- reasons for ensuring safe parking and unintentional movement and ground support requirements
- carrying out parking, shut down and isolation requirements according to manufacturer's instructions
- reasons for machine isolation including security and non-authorised use by others
- use of anti-vandalism equipment

Assessment criteria:

- demonstrate and explain safe parking of the machine - machine is parked in a safe, designated location, clear of hazards on level, firm ground - this should be observed during practical assessment
- apply brake systems effectively
- demonstrate how to isolate and secure the machine to prevent non-authorised use and explain why this is important - this should be observed during practical assessment
- describe the use of anti-vandalism equipment