Training Standard

Slinger/Signaller: Loader crane, Static Duties (Experienced)

Learning outcomes Including additional guidance to support training delivery and final assessment *The Learner will be able to:*
explain the hazards of working in the construction industry, and their responsibilities as a slinger/signaller *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 etc. • Health & Safety at Work Act 1974, Lifting Operations and Lifting Equipment Regulations (LOLER) (including the L113 ACoP to LOLER),Provision and Use of Work Equipment Regulations (PUWER) (including the L22 ACoP to PUWER) , Management of Health and Safety of Work (MHSW) Regulations, Construction (Design & Management) Regulations (CDM), BS 7121 Part 1, BS 7121 Part 4, ALLMI / CPA Best Practice Guide: Safe Use of Lorry Loaders, LEEA Code of Practice for the Safe Use of Lifting Equipment, HSG144, GS6 etc. in accordance with risk assessments, method statements, codes of practice and other relevant legislation, regulations, and industry good practice • operators' moral, legal, and environmental obligations • reporting structures, the importance of good communication on site (colleagues, management, and other workers on site) • past incidences involving relevant plant and pedestrians • working with other related roles occupations *Assessment criteria:* • identify common hazards on a construction site • explain safe working practices relevant to the role of the slinger/signaller • explain personal health and safety relevant to the role of slinger/signaller • identify aspects of legislation, regulations, and industry good practice relevant to the role of slinger/signaller • describe reporting structures and the importance of good communication on site • explain the responsibilities of a slinger/signaller
identify the roles and responsibilities of the lift team *Delivery to include:* • appointed person • crane/lift supervisor • other signallers • lorry loader crane operators • crane/lift co-ordinator

- ancillary workers
- other associated occupations

Assessment criteria:

- explain reporting and organisational structures
- identify and describe the roles and responsibilities of each individual with a duty holding role within the lift team as listed above

identify information relating to the preparation for the lifting operations

Delivery to include:

- why all lifts must be planned, supervised, and carried out safely
- interpreting and extracting appropriate information from: drawings, specifications, schedules, risk assessments, method statements, lift plans, verbal briefings, manufacturers' information

Assessment criteria:

- explain why all lifts should be planned, by whom, and factors to be taken into account when lifting operations using lorry loaders are being planned
- interpret and extract information relevant to the preparation for the slinging and signalling of loads from the given information

identify and explain the different types of lifting accessories / attachments for given types of loads

Delivery to include:

- the uses, application, and functions of the lifting accessories in accordance with a lift plan, to include: shackle, swivel hook, chain sling, webbing sling, and wire rope sling
- the checks to undertake on any integral lift points
- types of loader crane and authorised attachment points on the loader crane / attachments
- the methods of rating for multi-legged slings, and down-rating of lifting accessories for any particular configuration of use
- interpretation of markings on lifting accessories including: working load limit, safe working load, conformity marking, serial numbers, manufacturers marking etc.
- identification and application of multi-legged slings
- application of uniform load method to assemblies of single leg slings
- hazards associated with slinging methods

Assessment criteria:

- explain typical uses and applications of a shackle, swivel hook, chain sling, webbing sling, and wire rope sling
- explain the checks to undertake on integral lift points
- identify types of loader crane
- explain the methods of rating for multi-legged slings and down-rating of lifting accessories for any particular configuration of use
- describe the safe use of multi-legged slings and assemblies of single leg slings
- explain the uses, applications, and functions of various types of loader crane

- describe the hazards associated with slinging methods

undertake all pre-use checks on lifting accessories

Delivery to include:

- identify non-serviceable items of lifting accessories to include visual and functional checks carried out before the start of each shift or period of operation to ensure that the lifting accessories have not suffered any damage or failure and are safe to use
- identify possible effects of adverse environmental conditions, e.g., extreme temperature, strong sunlight, humidity, damp, chemicals and corrosive conditions.
- identifying and interpreting valid reports and certification for maintenance, inspection, and thorough examination
- the use of declarations of conformity in lieu of reports of thorough examination.
- checks on reports of thorough examination for lifting accessories, loader crane, and any attachments
- pre-use checks on a range of lifting accessories to ensure serviceability for intended operations including chain sling, webbing sling, wire rope sling, dee shackles, bow shackles
- pre-use check requirements of specialist lifting accessories / attachments e.g. lifting beams, clamps, vacuum lifters, lifting magnets, and pallet forks

Assessment criteria:

- carry out pre-use checks on a range of lifting accessories to ensure serviceability for intended operations including chain sling, webbing sling, wire rope sling, dee shackle, bow shackles - *this should be observed during practical assessment*
- explain the pre-use check requirements of specialist lifting accessories i.e., lifting beams, clamps, vacuum lifters and lifting magnets
- explain possible causes of failure in lifting accessories that would lead to declaring the item as unserviceable
- describe possible effects of adverse environmental conditions, e.g., extreme temperature, strong sunlight, humidity, damp, chemicals and corrosive conditions.
- identify at least one fit for purpose and two unserviceable lifting accessories from each of the following types: shackle, swivel hook, chain sling, webbing sling, and wire rope sling - *this should be observed during practical assessment*
- explain the visual and functional checks to carry out before the start of each shift or period of operation to ensure that the lifting accessories have not suffered any damage or failure and are safe to use
- from a given selection of lifting accessory reports of thorough examination, identify at least two examples that do not meet current legislation - *this should be observed during practical assessment*
- from a given selection of lifting equipment reports of thorough examination identify at least one that does meet the current legislation - *this should be observed during practical assessment*

identify and maintain personal protective equipment (PPE) and appropriate safety control equipment for slinger/signaller use

Delivery to include:

- what safety control equipment/PPE should be worn/used for slinger/signaller 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 etc.
- why weather conditions, including heat and cold, can determine what PPE is worn when carrying out the role of slinger/signaller 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
- state how severe weather can affect safety and health with insufficient equipment

explain procedures for placing non-serviceable items out-of-service

Delivery to include:

- procedure for identifying and rejecting damaged and defective lifting accessories
- the importance of checking all lifting accessories
- types of damage and the implications of using damaged or unsuitable lifting equipment
- the sequence of pre-use checks and procedures for in–service and out-of-service markings
- rejection criteria for removing lifting accessories from service
- purpose of quarantining defective items

Assessment criteria:

- explain the importance of checking all lifting accessories
- describe the types of damage and the implications of using damaged or unsuitable lifting equipment
- explain the procedure for defect reporting and why it is important
- explain the removal of defective items according to organisational requirements
- explain the need for secure storage of defective items
- describe the sequence of pre-use checks and procedures for in–service and out-of-service markings

identify and explain centres of gravity and methods to establish weights of loads

Delivery to include:

- methods of establishing centres of gravity including for a range of loads (e.g. balanced loads, un-balanced loads, loose loads, bundled loads, containerised loads) to include:

  from the given information, calculation, assessment, estimation, and trial lifts
- identification of load types, volumes, characteristics, areas, density, moisture content, load markings, manufacturer's information, lift plans
- methods of establishing weights of loads for a range of loads (e.g. balanced loads, un-balanced loads, loose loads, bundled loads, containerised loads) to include: from the given information, calculation, assessment, and estimation
- identification of what should be included in the gross load weight, e.g. load, lifting accessories, and any attachment on the loader crane

Assessment criteria:

- describe methods of establishing centres of gravity including for a range of loads (e.g. balanced loads, un-balanced loads, loose loads, bundled loads, containerised loads) to include: from the given information, calculation, assessment, estimation, and trial lifts
- identify load types, volumes, characteristics, areas, density, moisture content, load markings, manufacturer's information, lift plans - *this should be observed during practical assessment*
- describe methods of establishing the weights of loads for a range of loads (e.g. balanced loads, un-balanced loads, loose loads, bundled loads, containerised loads) to include: from the given information, calculation, assessment, and estimation

Assessment requirements:

- for the purposes of assessment activities, the weight of all loads must be known

ensure hazards in the work area are identified and managed appropriately and that any necessary safety checks at the work area have been carried out

Delivery to include:

- preparing restricted access zones to undertake the lifting operation in (and, where necessary, exclusion zones, e.g. in potential crushing locations), identifying hazards or situations that are likely to be encountered in a lifting operation, and determining safe and effective personal positioning in the vicinity of the lifting operation including awareness of:
  - load centre of gravity position uncertainty
  - load weight uncertainty
  - instability of loads due to lift point locations (e.g. lifting points below the load centre of gravity)
  - obstructions / snagging locations
  - fragile loads
  - loads designed to rotate when lifted / landed e.g. concrete skips
  - uncertainty of attachment point suitability
  - rapid speed of equipment movement
  - potential oversailing of personnel with loads
  - communication issues (e.g. radio communication failure)
  - moving loads crush zones
  - leading edges
  - working at height
  - adjacent plant and other works
  - poor / limited lighting
  - services (above ground and below ground)
  - environmental conditions
  - lifting to height or depth (e.g. into excavations)
  - poor ground conditions
  - places of limited movement and restricted spaces
  - places with limited or no visibility between operator / slinger-signaller
  - effects of wind on loads

  - unauthorised personnel in the area
- identifying where it will be safe to be positioned during the lift, especially the first raising of the load (including trial lift), taking into account the potential unexpected load movement that may occur at this stage
- understanding the actions to take before directing the equipment to first raise the load (including for trial lift): taking hands off the load, stepping away from the load, and moving to a safe space ("Hands off, Step away, Safe space")
- understanding the actions to take after initial raising of the load: stopping the lift if there is an issue, not intervening in an unexpectedly moving load, waiting for the load to become steady and stable, and only approaching when safe and if necessary
- actions to take if any hazards are not managed appropriately in line with site procedures / risk assessments, i.e. report to supervisory/managerial personnel
- actions required for emergency situations
- understanding how slewing at high speeds can affect stability and safety
- understanding the importance of confirming and checking any travel route in advance of the lifting operation for the presence of hazards, e.g. overhead services
- understanding what might cause unplanned detachment of a load
- understanding the importance of agreeing a communication method and signals between the slinger-signaller and the loader crane operator

Assessment criteria:

- carry out checks of the working area to ensure suitability of a lifting operation against given information - *this should be observed during practical assessment*
- explain why it is important to report any hazards identified
- prepare and maintain control of the restricted access and exclusion zones and should include discussion of how to construct and maintain safe lifting zones for differing complexities of lifting operation and in various locations - *this should be observed during practical assessment*
- identify where it will be safe to be positioned during the lift, especially the first raising of the load (including trial lift), taking into account the potential unexpected load movement that may occur at this stage - *this should be observed during the practical assessment*
- before initial raising of a load (including for trial lift): ensuring that hands are taken off the load, stepping away from the load, and moving to a safe space ("Hands off, Step away, Safe space") - *this should be observed during the practical assessment*
- explain the actions to take after initial raising of the load: stopping the lift if there is an issue, not intervening in an unexpectedly moving load, waiting for the load to become steady and stable, and only approaching when safe and if necessary
- explain the actions to take if any hazards are not managed appropriately in line with site procedures / risk assessments, i.e. report to supervisory/managerial personnel
- explain the actions required for emergency situations
- explain the importance of confirming and checking any travel route in advance of the lifting operation for the presence of hazards, e.g. overhead services - *this should be observed during the practical assessment*
- explain what might cause unplanned detachment of a load

attach various types of loads to a loader crane using the relevant lifting accessories and procedures ensuring load balance, security, and integrity

Delivery to include:

- selecting, handling, assessing, protecting, and using (assemble, set up and adjust) lifting accessories and aids
- different attachment points for types of lifting equipment
- manual handling requirements for various types of lifting accessories
- conforming with lifting equipment rated capacities and corresponding working radius
- undertaking trial lifts
- attach loads to a loader crane, to include the following: balanced, un-balanced, and loose/bundled loads
- ensuring the alignment of the accessory attachment point and load, taking into account boom/jib deflection
- methods of ensuring integrity and security of loads e.g. netting, sheeting, and strapping

Assessment criteria:

- select the appropriate lifting accessories for a load from given information - *this should be observed during practical assessment*
- ensure the selected load is suitable for movement - *this should be observed during practical assessment*
- undertake trial lifts - *this should be observed during practical assessment*
- identify the different attachment points for types of loader crane - *this should be observed during practical assessment*
- explain the manual handling requirements for various types of lifting accessories
- confirm the lift is within the loader cranes rated capacity and corresponding working radius - *this should be observed during practical assessment*
- attach loads to a loader crane, to include the following: balanced, un-balanced, and loose/bundled loads - *this should be observed during practical assessment*
- ensure the alignment of the accessory attachment point and load, taking into account boom/jib deflection - *this should be observed during practical assessment*
- explain the methods of ensuring integrity and security of loads e.g. netting, sheeting, and strapping

Assessment requirements:

- For the purposes of assessment activities, all load weights should be either confirmed from provided information or calculated, and suitable attachment methods should be established, e.g. integral lifting points where provided or double choked slings on bundled loads.

direct and guide the movement of loads to different types of location using different methods of communication with the loader crane operator

Delivery to include:

- the purpose of a trial run

- communicating using hand signals, in line with published guidance material
- electronic communication, voice commands, procedures, and limitations
- guiding, controlling, and placing suspended loads by recognised methods of communication and agreed operational procedures
- determining and checking the load path before and during the lift including distances, obstructions, clearances, landing position and other activities (including lifting) in the area
- loading and unloading from vehicle beds
- load movement where loads are blind to the equipment operator
- accurately control placing of loads
- methods of controlling loads using equipment e.g. tag lines, push/pull poles, and remote manipulation devices, and determining when this approach is necessary / safe to undertake (i.e. not all loads will require control using equipment, and the use of equipment must only be considered when it is safe and doesn't place the user at an enhanced level of risk)
- understanding the purpose of controlling loads using equipment, i.e. to control rotation of the load to avoid obstructions and to aid accurate positioning but not to fight the forces imposed by wind, and identifying the appropriate place to attach equipment to, e.g. at strong points on the corner of loads
- landing the load to allow lifting accessories to be retrieved

Assessment criteria:

- explain the purpose of a trial run
- describe the importance of communicating using hand signals, in line with published guidance material
- give examples of electronic communication, voice commands, procedures, and limitations
- determine and check the load path before and during the lift including distances, obstructions, clearances, landing position and other activities (including lifting) in the area - *this should be observed during practical assessment*
- direct and guide the operator to lift a balanced load from ground level and land it in a designated place - *this should be observed during practical assessment*
- direct and guide the operator to lift an unbalanced load from ground level and land it in a designated place *this should be observed during practical assessment*
- direct and guide the operator to lift a loose/bundled loads(or similar bundled items) no less than 4m in length using a double choke hitch from ground level and land it in a designated place - *this should be observed during practical assessment*
- direct and guide the movement of a load where the initial lifting or the landing of a load is out of sight of the operator - *this should be observed during practical assessment*
- control the movement of a selection of loads using relevant equipment – *this should be observed during practical assessment*
- provide clear and accurate signals and instructions to lifting equipment operators - *this should be observed during practical assessment*
- land all loads accurately at given places - *this should be observed during practical assessment*

Assessment requirements:

• once each load has been landed, the load must be detached, and the lifting equipment moved away from the load for at least 90° before any reattachment occurs • one load must be placed at maximum radius of the lifting equipment • one load movement which involves at least full limits of achievable slew of the training vehicle • one load to be landed at the lifting equipment's minimum operating radius • one long load to be slewed for at least 180° with the load at the minimum achievable radius • all loads must be kept under control, through appropriate communication / signalling and the use of equipment, as appropriate • at least one load should be controlled using a tag line that is secured in a way in which it cannot be inadvertently disconnected • loads must be landed accurately on the designated landing point • at least one lift must use electronic communication (radio), and at least one lift must use hand signals • loads must be made safe and secure after landing
detach various types of loads from the lifting equipment using relevant procedures *Delivery to include*: • ensuring stability of loads once landed • detaching procedures for accessories from loads and lifting equipment • ensuring load integrity following disconnection • how to reconfigure lifting accessories after detachment following placing of a load so that any component part does not foul structures or objects *Assessment criteria:* • ensure stability of loads once landed - *this should be observed during practical assessment* • detach a range of lifting accessories from the loader crane using relevant procedures - *this should be observed during practical assessment* • ensure load integrity following disconnection - *this should be observed during practical assessment* • guide accessories away from a landed load whilst ensuring that structures or objects are cleared - *this should be observed during practical assessment* *Assessment requirements:* • once each load has been landed, the load must be detached, and the loader crane attachment moved away from the load by at least 90° or ensure any structures or objects are cleared (whichever is greater) before any reattachment occurs
explain environmental considerations *Delivery to include*: • health and social reasons to reduce machine emissions • government industry zero emission initiatives • air quality and the component gases of air

- how engine emissions 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 etc.
- minimising engine usage
- 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

carry out all post lifting checks and securing procedures

Delivery to include:

- functions and requirements of end of service procedures
- requirements for cleaning and protecting accessories when out of use
- typical types of lifting operation damage on accessories
- security and storage procedures
- post lifting documentation requirements

Assessment criteria:

- undertake end-of-service checks in accordance with procedures - *this should be observed during practical assessment*
- store lifting accessories in accordance with procedures - *this should be observed during practical assessment*
- describe the requirements for cleaning and protecting accessories when out of use
- describe the typical types of lifting operation damage on accessories e.g. cuts, tears and stretches
- explain the post lifting requirements, e.g. defect reports, lift plan reviews, post-lift reviews and paper work sign off