Unit 316: Slinging and signalling the movement of suspended loads

# Delivery guide

Unit information

This unit is about preparing for, and slinging and signalling, the movement of loads.

Learners may be introduced to this unit by asking themselves questions such as:

* What machines are used to move loads?
* How do I know that the equipment is safe to use?
* What methods are used to communicate to the crane operator?
* What’s the difference between a chain and a web sling?

Learning outcomes

1. Understand resource selection
2. Understand working to a contract specification
3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Suggested resources

Textbooks

* *Code of practice for the safe use of cranes – Inspection maintenance and thorough examination. Mobile cranes* (2012) London: BSI. ISBN 978-0-5807-8194-0
* *Mobile Crane Operations Level 1 Trainee Guide Paperback* (2015). ‎London: Pearson. ISBN 978-0-1310-9864-0

Websites

* [Highways Safety Hub | Slinger/Signaller Study Guide](https://www.highwayssafetyhub.com/uploads/5/1/2/9/51294565/3a_-_hr_t_d_slinger_signaller_study_guide.pdf)
* [HSE | Lifting equipment at work: A brief guide](https://www.hse.gov.uk/pubns/indg290.pdf)
* [HSE | Preventing accidents during lifting operations](https://www.hse.gov.uk/construction/lwit/assets/downloads/lifting-operations.pdf)

Legislation

* [HSA | Guide to the Safety, Health and Welfare at Work (General Application) Regulations 2007](https://www.hsa.ie/eng/Publications_and_Forms/Publications/General_Application_Regulations/Work%20Equipment%20updated%20version.pdf) (2010 Update)
* [HSE | Safe use of lifting equipment](https://www.hse.gov.uk/pubns/priced/l113.pdf)

| **Learning outcomes** | **Criteria** | **Delivery guidance** |
| --- | --- | --- |
| 1. Understand resource selection | * 1. Characteristics of the resources | * Learners to understand and to be able to describe the uses of a range of resources in relation to plant and machinery (including mobile crane, telescopic handler, forklift, lorry loaders, manual handling), lifting accessories (including chain slings, webbing slings, wire-rope sling, pallet truck) when moving suspended loads (including spandrel panel, trusses mono, girder, fink, dimensioning trusses, cassette floors, loose timber, floor joists, HY/I beam, Larsen trusses, timber wall panels). * Learners to be set exercises where they have to link the description and use of the above resources to images of them (drag and drop exercises are suitable here). * Learners to understand and state the process of how to identify defects (including visual inspections) and to understand the limits of their responsibility. |
| * 1. Use of resources | * Learners to know the methods used to connect accessories (including slings, rings, links, hooks, shackles, swivels, eye bolts and spreader beams). * Learners to be set exercises to use the above resources (either in their centre or as part of a collaboration with a contractor or plant-hire company). * Learners to know how to identify problems and to understand the reporting procedure when slinging and signalling the movement of suspended loads. |
| * 1. Organisational procedures to select resources | * Learners to understand and have a knowledge of the working procedures used to select the most appropriate methods of slinging and signalling the movement of suspended loads and to know how to follow the procedures of the resources being used including crane, telescopic handler, forklift, lorry loaders and manual handling. * Learners to understand and state the working procedures used to select the most appropriate accessories including slings, rings, links, hooks, shackles, swivels, eye bolts and spreader beams to use when moving timber frame comments (sling angles, hook positioning). * In groups, learners to be given scenarios and asked to select the appropriate resources and justify their choice to their group. * Learners to know and describe/state how to inspect, store, maintain and record checks on lifting equipment and accessories. |
| * 1. Hazards | * Learners to understand the hazards that are present related to slinging and signalling the movement of suspended loads. * Learners to know and state the major types of hazards and risks associated with slinging and signalling of suspended loads, to know how to follow risk assessments and method statements and to know how to carry out the work in a safe manner, including size, shape, methods of work, working from height and manual handling. * Learners to be given a set of risk assessments and method statements (RAMS) and asked to talk through one of the listed activities with their group. * Learners to know the different types of signals and alternative forms of communication and when they are to be used. * Learners to be given a table with all the signals on, then take turns to demonstrate a signal while their team record which they think it is on the table. * Learners to be able to identify hand signals, hand-signalling equipment (lights, wands, fluorescent gloves, flags) and electronic communication equipment (loud hailers, radios). * Learners to understand their responsibilities in relation to the hazards. |
| 1. Understand working to a contract specification | * 1. Methods of work | * Learners to understand how to identify the correct positioning of a range of lifting accessories including slings, rings, links, hooks, shackles, swivels, eye bolts and spreader beams when slinging the movement of suspended loads linked to timber framing (loose material, beams, columns and panels). * Learners to understand and to be familiar with the correct methods used to signal, when moving timber-framing components, floors, joists and roofs (loose material, beams, columns and panels). * Learners to understand the importance of using signalling techniques between themselves and the plant operator and its purpose (to instruct, sign, position, adjust, configure, move, secure, signal and relay the resource being moved). * Learners to be set activities covering the above points under strict supervision. * Learners to know the procedure for reporting problems found with fixing and lifting accessories. |
| * 1. Tools and equipment | * Learners to understand the correct methods used to carry out visual checks on lifting accessories (chain slings, webbing slings, wire-rope sling, shortening clutches, slink hooks, pallet truck, rings, links, hooks, shackles, swivels, eye bolts and spreader beams). * Learners to understand the correct methods used to maintain hand-signalling equipment (lights, wands, fluorescent gloves, flags) and electronic communication equipment (loud hailers, radios), including checking for accuracy, cleaning equipment and charging/changing batteries. * Learners should be set activities covering the above points. Each learner should then be given one accessory and they should demonstrate to the group how this is checked, maintained and stored. |
| 1. Comply with the given contract information to carry out the work safely and efficiently to the required specification | * 1. Demonstrate work skills to measure, gauge, estimate, calculate, fit, fix, test, balance, interpret, inspect, judge, explain, prepare, indicate, inform, instruct, sign, position, adjust, configure, move, secure, signal and relay | * Learners to be able to use calculations for slinging and/or the lifting points. * Learners should be given simple exercises following worked examples being taught. * Learners to be able to identify and select the correct lifting accessories to suit the load being lifted. This can be linked with the activity for Criteria 1.1 above. |
| * 1. Use and maintain lifting accessories, lifting aids and signalling and slinging and signalling the movement of suspended loads and communication equipment to: * inspect and prepare lifting accessories prior to slinging * sling and signal for the lifting and movement of loads by plant or machinery operations to given working instruction, at least three of the following:   balance  unbalanced  loose  bundled  container  drum  a load where the machine operator cannot observe its full movement path.   * guide, move and place suspended loads to agreed destinations to given working instructions using hand signals, plus one of the following methods:   hand-signalling equipment  electronic communication equipment | * Learners to able to identify and describe the use of a range of lifting accessories including slings, rings, links, hooks, shackles, swivels, eye bolts and spreader beams to safely load and sling a range of timber-framed structural components including: * wall panels * floor panels * roof trusses * spandrel panels * loose timber components.   This can be linked to the activity in Criteria 1.2 above.   * Learners to be able to identify appropriate signalling methods including hand and electronic signalling. This can be linked with the second activity in Criteria 1.4 above. |