

CPCS renewal test factsheet



Introduction to the CPCS renewal test

The industry-led CPCS Management Committee has determined that key safety-related knowledge must be checked on each category prior to the renewal of a CPCS Competent Operator (blue) card. The CPCS renewal test is the means by which blue cardholders will be tested on topics that reflect safety issues identified through consultation, that occur regularly on site.

For each topic identified there is a set of questions, from which a number will be included in the test and for which supporting information is provided in this factsheet. Each test will ask a total of 15 questions selected randomly to ensure all topics are covered.

The test will cover all categories within the scheme through modules. Some modules have been devised to cover a range of similar CPCS categories.

The CPCS renewal test is available on the CITB-ConstructionSkills Testing Services platform alongside the Health, safety and environment test.

The questions and answers will not be published but factsheets are available for each module to cover the topics.

How to use this factsheet

Prior to taking the test, cardholders are advised to carefully study the factsheet, which will prepare them in deciding the correct answer or answers to each given question. Correct answers are based on legislation or good practice adopted, in the majority of cases, by the construction and allied sectors.

It is acknowledged that variations may occur depending on the nature of the operation or on how the machine is used. However the correct answer to each question is based on common practices or manufacturers' requirements for the majority of machine types within each module, and applies to this test irrespective of how a machine may be used within a particular activity or sector. It is important, therefore, that this factsheet is studied carefully.

The questions are selected randomly and will not appear in the order that topics appear in this factsheet.

If the card holder does not answer all the questions correctly, the score report issued after completing the test will indicate the topic areas in which the questions were answered incorrectly. The cardholder should, prior to retaking the test, re-study all topic areas.

Scoring the test

To be successful in this module, cardholders need to correctly answer a minimum of 12 out of the 15 questions presented. However, because many of the questions are safety-related, in the majority of cases, a minimum number of questions per topic need to be answered correctly. Failure to do so, even if the overall minimum number of correct answers has been reached, may mean that the cardholder is unsuccessful on the test.

The top of each topic states the number of questions that will be presented for each topic and the minimum number of questions that must be answered correctly in order to pass the test.

Concessions

To avoid duplication of questions where similar categories are held, booking concessions are provided. This means that, if several similar categories are held, only one module needs to be booked. The following chart indicates if there is a booking concession for this category.

Concessions are provided to holders of the category of Lorry loader.

Other categories held:

Slinger/signaller

Compact crane

Needs only to book:

Lorry loader

Note: *The above concessions are an outline of what tests you may have to book; please refer to Module matcher for details of full concessions where more than one category is held.*

This factsheet has been designed to highlight only topics that have been identified through industry consultation area with safety issues or where good practice is often not complied with. The questions within the CPCS renewal test for this category also reflect this.

It is not intended as a training tool and cannot list all essential knowledge and understanding for this category. Operators must always follow manufacturers' requirements, industry good practice and be aware of their own limitations with the machine, and seek further guidance and help where needed.

Further information about the CPCS renewal test can be found at www.cskills.org/cpcs

Preparation and completing work *(Preparation)*

Topic scoring information: 2 correct answers required out of 4 questions presented to pass

- Lorry loaders are by design, where used in or serving the construction sector, knuckle-boom loader-type cranes mounted on a road vehicle-based chassis and in principle limited to the loading and unloading of loads to and from the vehicle bed. The loader crane has the capability of slewing through 360 degrees and varying the working radius, and it is equipped with stabilisers for carrying out static lifting duties. They can be operated through various workstations, on either one or both sides of the vehicle while some versions can be operated remotely via a radio-operated unit.
- Although the loader crane tends to be operated by the vehicle driver (operator) as part of their overall duties, accidents and incidents do occur. This factsheet aims to highlight some of the factors where incidents can and have occurred, and act as a reminder of safe lifting principles. Proper pre-use checks are a requirement for the safe operation of any type of plant or vehicle and the operator is expected to undertake such checks at the required intervals. Failure to properly check all relevant components before work could lead to incidents or injuries because faults can affect both performance and safety.
- The checks and inspections that need to be made are contained in the operator's or user's manual for both the vehicle and the crane, for which the operator needs to follow the relevant manufacturer's instructions. If the operator notices any defect, they need to report it immediately before the vehicle or crane is used, with the appropriate expertise contacted who can decide when the vehicle or crane can be put to work. An operator could incorrectly diagnose what they consider to be a minor fault, such as some chafing on one of the hydraulic hoses, whereas in fact it could be a severe fault possibly leading to the failure of the hose and crane. The lifting accessories (gear) should be checked not only before but also after each lifting operation, as the accessory may have been damaged during use.
- A requirement under legislation is the devising of a lift plan for the all the lifting operations that are to be carried out, as devised by the lift planner/appointed person. Amongst many factors, the lift plan should identify all risks, the measures to be taken to mitigate these risks, the weight and type of load, the type of lifting accessories (gear) that should be used for each load and the sequence of work that is required. It is also important that the operator is informed of the plan's contents and the actions required of them. If they notice that something in the plan is not correct or missing, they should immediately relay any concerns they have with the lift plan to their supervisor and if the lift plan needs amending, only the lift planner/appointed person is allowed to alter the lift plan.
- Lorry loaders are equipped with stabilisers and before driving on the road, these need to be both in the transport position and locked, with any locking pins in place and secure prior to movement. Pedestrians have died when vehicle's stabilisers have slid out whilst driving along the public highway.

Working safely and with others *(Working safely)*

Topic scoring information: 1 correct answer required out of 3 questions presented to pass

- Lifting operations involving lorry loaders take place in a variety of places, with many near or within areas with public access or movement. The area of lift and placing the load must be segregated from nearby pedestrians, who are normally oblivious to the dangers. Moving a suspended load above people, including pedestrians, should be avoided. In the unlikely event that this is not possible, a competent person should plan other measures such as putting netting around a load or additional securing or protection features prior to the lift taking place.
- Conditions on site need to be taken into account before, during and after work. The lorry loader must be kept well clear of any overhead power lines. Guidance from the Health and Safety Executive advises that at least 9 metres plus the maximum reach of the loader crane and any extension is kept from power lines mounted on wooden poles. At least 15 metres plus the maximum reach of the loader crane and any extension must be kept from power lines mounted on metal pylons. If a load needs to be placed within the stated distances, the electricity distribution company must be consulted in the first instance.

- Because lorry loaders spend a significant amount of their working time travelling on the public highway, Road Traffic Act requirements need to be followed. Before joining the public highway, the overall height of the vehicle when it is in road transport configuration needs to be checked and noted. Under the Road Traffic Act, the height of the vehicle when it is above 3 metres must be displayed clearly in the cab. Lorry loaders are further required to be fitted with a visual warning system to indicate to the driver if the loader crane is above a pre-set travelling height. However, bridge strikes by a range of over-height vehicles are common. Traffic warning or prohibition signs on or near bridges show the maximum permitted vehicle height when the bridge is less than 16 foot 6 inches/5.03 metres high. Bridges with a full or partial arch tend to have goal posts or markers that the vehicle must be kept between.

Lifting and using attachments *(Working tasks)*

Topic scoring information: 2 correct answers required out of 4 questions presented to pass

- The loader crane should be equipped with some form of rated capacity indicator (RCI) which provides warnings to the operator when the loader crane both approaches and exceeds maximum rated capacity for the configuration. Some RCIs can be overridden or adjusted but this is purely for diagnostic and testing purposes during the maintenance programme and they must never be overridden by anyone during lifting operations; otherwise over-lifting could risk the crane overturning.
- The weight of a load needs to be established before it is lifted, and checked that it is within the lorry loader's maximum rated lifting capacity. This is predetermined by the loader crane manufacturer and is dependent on a set configuration, including the operating radius. The operating radius is defined as the measured horizontal distance from the crane's slew centre to the centre of the hook. The rated capacity is the total weight that can be lifted and operators need to be aware that the total weight being lifted will include the weight of the load, any packing or packaging, the weight of the lifting accessory or accessories and any attachments still fitted e.g. a bucket. The rated capacity of nearly all cranes only applies to a freely suspended load. When the load is attached to a structure or embedded in the ground, the increased resistance during a lift can overload the crane.
- The weight of any load is, in principle, determined by its size and density – for example, a pack of house bricks will be heavier than a same-sized pack of aerated breeze-type blocks – meaning that operators can't estimate the weight by shape, height, width and length alone. If the weight is not known, it should be established before it is lifted. Operators need to be aware that loads can be heavier than the weight indicated on the load or associated tare sheet. If, for example, they are of a porous material such as sand, or covered in packaging that has soaked up water, the load can be heavier than marked. The handling of loads requires care particularly where varying loads are lifted and placed; for example, to prevent loads with sharp edges damaging lifting accessories such as fibre slings, the operator should apply a packing material between the accessories and the load.
- Where a load is being attached using a two-legged chain sling, the operator need to understand the safe working load of each lifting accessory and what might happen if an accessory is used beyond prescribed limits. For example, if a two-legged chain sling is lifting a load of 4 tonnes with each leg vertical, the load in each leg is half of the total and in this case, 2 tonnes. If the (included) leg angles are increased beyond 90 degrees, the load in each leg is increased to 4 tonnes. Therefore multi-legged chain slings should not be used beyond an (included) angle of 90 degrees as they could be overloaded.
- All cranes, including loader cranes, are designed to lift a load vertically. This means that the hook of the crane must be placed above the centre of gravity for the load. If the hook is offset to the load, when the load is at the point of lift it can drag along the ground – if the load snags whilst being dragged, an overload situation can occur. The operator also needs to consider the effect of a load if slewed too fast or lifting loads with a large surface area in high winds as both can cause the crane to go out of radius and become unstable.
- Lifting regulations indicate that where the operator cannot see the full path of the load (if, for example, it is being placed behind a wall), then a signaller is required to assist the lifting operation. Before the lift is undertaken, the operator and signaller need to ensure that a code of signals is understood and agreed.

Stability

Topic scoring information: 2 correct answers required out of 4 questions presented to pass

- Due to the various factors mentioned, lorry loaders have become unstable and overturned, with the usual costly consequences. Effective planning of the ground, working area and other environmental factors must be taken into account before setting up begins. Ground conditions naturally play an important part in stability and these should be established by a suitable and competent person to ensure that the ground can support the bearing pressure applied through each stabiliser for all expected loads and configurations.
- Ground conditions are crucial for maintaining stable operations. The operator needs to take into account changes to the ground, such as after heavy rain which can weaken the ground and cause one or more of the stabilisers to sink. The weight applied by the pad of a stabiliser is at its greatest when the boom of the loader crane is directly over the leg and the heavier the load at the maximum permissible radius means additional loading through the leg. Ground-bearing pressure can be reduced through each outrigger by using spreader or support mats which spreads the applied pressure. The larger the mat, then in principle the greater the reduction in applied pressure. The minimum size of a mat should be determined by an appropriate expert.
- Lorry loaders generally can only lift loads when the vehicle is level both longitudinally (forward/backward) and laterally (sideways). Where the loader crane is not level, the radius of the load may exceed the safe maximum, especially where it is close to the rated capacity, and this may make it unstable. As some of the stability is dependent on the weight of the host vehicle, the least stable state, or the point which instability is more likely to occur, is when the vehicle has no loads on its carrying platform or bed.
- In certain locations, the limited size of the loading and unloading area may mean that the stabilisers cannot be fully extended. Operators therefore have not or only partially extended them with the result that the vehicle becomes less stable. Investigations have shown that a common cause of vehicle overturns is when operators have not, or only partially, extended stabilisers. Loader crane manufacturers provide guidance on when partial extensions of the stabilisers can take place. This guidance must be followed at all times and partial extension must not occur unless approved by a suitably qualified and authorised person.