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The questions and answers will not be published but factsheets are available for each module to cover the topics.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

Other categories held:	Needs only to book:
Appointed person	Appointed person
Slinger/signaller	Crane/lifting operations supervisor

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.citb.co.uk/cpcs

Planning and regulatory requirements *(Regulatory requirements)*

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

- The requirement for a lifting operation to be appropriately supervised is prescribed within codes of practice such as LOLER 1998, with the role and duties of a crane/lifting operations supervisor (CS) indicated within other guidance such as BS 7121 which identifies the responsibilities, attributes and requirements. The given definition of 'appropriate' supervision is that it is proportionate to the risk of the operation. The appointed person (AP) or lift planner remains responsible for the execution and safety of the lifting operation but may delegate the supervision, although not the responsibility, to other persons who in effect become the CS.
- Where the duty is being delegated, the CS should be able to give clear instructions to the lifting team and direct and supervise the lifting operation, ensuring it is carried out according the lift plan or method statement. If the lift plan requires amendments either before or during a lifting operation, the CS must consult with the AP, who is the only person who can authorise changes to the plan. Although in general not a 'hands-on' role, the CS needs to have sufficient experience and the appropriate expertise and knowledge. As the factors within a lifting operation can vary considerably depending on sector, location and crane type, the CS needs to know their limitations. If they are inexperienced in certain aspects, they should seek appropriate guidance accordingly.
- Lifting operations regulations require that a signaller is needed if the lifting equipment operator cannot see the full path of the load. This is an additional role to that of a load handler or slinger. To minimise any incidents such as trapped limbs, the lift plan should indicate, and the CS ensure, that the slinger directs initial movements to the crane operator whilst the load is being slung, before handing control over to the designated signaller. In certain circumstances, several signallers may be required to guide the load along the travel route if it is out of sight for one signaller.
- The majority of cranes are fitted with a rated capacity indicator (RCI) which normally provides warnings to the operator and others nearby when the crane both approaches and exceeds maximum rated capacity for the configuration. Some RCIs can be overridden but this is purely for diagnostic and testing purposes during the maintenance programme. The CS must ensure that RCIs are not overridden by anyone during lifting operations, otherwise over-lifting could occur, with the crane at risk of overturning.

Lifting equipment and accessories *(Equipment and accessories)*

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

- Lifting accessories (gear) come in a variety of types in including chain slings, wire rope slings and fibre-type webbing slings. There is also specialist equipment such as lifting beams. The type of load to be lifted will determine the type of accessory used, but each type of accessory has its limitations and the selection of the incorrect type has caused loads to detach or fall from the accessory when being lifted. For example, although very versatile, the links of a chain sling can be easily damaged if they are used to lift steel beams that have protruding edges. Another example is that a rope sling cannot be effectively bent around tight corners and may not grip loads sufficiently.
- Lifting accessories should be marked with the safe working load (SWL) but are also rated by the working load limit (WLL). In terms of definition, the WLL is the maximum load that the accessory can, by design, lift and this never changes whilst the SWL is the maximum load that the accessory can lift under particular service conditions, which can vary depending on application. The SWL of a pair of slings normally only applies (in general) up to an included angle of 90 degrees – if this angle is exceeded, the SWL can be greatly reduced. For example, if a two-legged chain sling is lifting a load of 10 tonnes with each leg vertical, the load in each leg is half of the total and, in this case, 5 tonnes. If the included leg angle is increased beyond 90 degrees, the load in each leg is increased to 10 tonnes. If the accessory was working near to its SWL, it would be overloaded. Where the included angle increases beyond 120 degrees then, in general, the accessory cannot be used and must be substituted for the correct type, such as a lifting beam.
- When a multi-legged chain sling is attached to a load, it needs to be ensured that the open end of each hook should be facing out or away from the load, which reduces the chance of a hook slipping out of the load's

lifting eye. When attaching the master link of a multi-legged chain sling to the hook of a crane, the CS needs to ensure that the master link is large enough to articulate freely when on the hook. If more than one set of slings are being connected to the hook of a crane, a shackle of sufficient size and load capacity should be used to prevent damage to the hook and each set of slings.

Lifting and controlling loads *(Working tasks)*

Topic scoring information: 3 correct answers required out of 6 questions presented to pass

- Where the AP has delegated the supervision task to the CS, one key role is to effectively brief all members of the lifting team prior to the lifting operation taking place. Both during, but particularly at the end of, the briefing, the CS should check that each member has understood what is required and provide ample opportunity for each member of the lifting team to ask questions. In some instances, team members may have noticed that something is incorrect or not taken into account.
- When lifting operations take place in areas where other workers or pedestrians are in the vicinity, the safe system of work should, wherever possible, stipulate that moving a suspended load above other workers or pedestrians must be avoided. Where this is not possible, other measures such as putting netting around a load or additional securing or protection features must be considered. If a load has to be left suspended for a short period, the CS needs to ensure that the operator stays with the crane.
- All proximity hazards and conditions on site need to be taken into account and cranes must be positioned clear of any overhead power lines. Regulatory lifting operations guidance advise that at least 9 metres plus the length of the jib or boom is kept from power lines mounted on wooden pylons and that at least 15 metres plus the length of the jib or boom is kept from power lines mounted on metal pylons.
- Where specialist lifting accessories are being used, the plan should specify, and that the CS ensures that, the slingers have sufficient knowledge of the relevant attaching procedures. Cranes sometimes need to be positioned within confined areas where there may be restricted room, particularly with smaller cranes or lifting-type plant such as 360 excavators. Where space around the machine is limited, the CS needs to check for any trapping points around the slew or travelling area of the machine and facilitate an exclusion zone to minimise these trapping points if the gap is less than 600mm.
- The plan should specify actions to be taken if there are changes to environmental aspects, such as extreme weather which can affect the lifting operation in terms of load control, visibility and ground support. Exposure of the lifting team to poor or extreme weather being another issue to be addressed. If a complex lift is taking place where two cranes are lifting a single load, a procedure that ensures good co-ordination between each crane operator during the lift should be determined within the lift plan and executed by the CS.
- As part of their work role, members of the lifting team such as the slinger/signaller may provide assistance with, or lift materials directly from a delivery vehicle. Before any load restraining or securing gear is released, the CS must check that the load will not shift or move before any load-restraining or securing gear is released. Severe injuries have occurred when loads have shifted unexpectedly after securing gear is released.

Crane and lifting equipment stability *(Stability)*

Topic scoring information: 1 correct answer required out of 2 questions presented to pass

- Instability and overturns of cranes still occur for a variety of reasons, including changes in operating conditions, unknown or unconsidered factors (such as ground support), insufficient factors of safety, deviation from the lifting plan or errors in calculations. Proper siting and support of the crane should minimise many of the instability issues. The lift plan should determine the ground-loading pressure to be exerted by the crane in all configurations and loads, that the weight of all known loads determined and calculated correctly, and that the ground can safely support the required pressure. The plan should further account for dynamic forces applied by the crane through the ground and an appropriate factor of safety determined accordingly.
- All cranes are designed to lift a load vertically, which 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 can occur. The rated capacity of most cranes only applies to a freely suspended load so if the load is attached to a structure or embedded in the ground, the increased resistance when it is being lifted can again overload the crane.

- Wind speeds should be regularly monitored so that cranes are only in use when winds are below the maximum authorised speed stipulated by the crane manufacturer. Gusts of wind may also need to be taken into account, even if overall wind speeds are below the set limit. Loads with a large surface area can, in high winds, move and/or swing, making the hoist rope go out of line vertically, which could cause the crane to go out of radius.
- When travelling on a site, a mobile-type crane may need to travel or manoeuvre on temporary roadways or haul roads. In some cases, this can involve large distances and driving up or down long and steep inclines. In most cases, these types of temporary roads do not have kerbs. Driving too close to the edge of a temporary or minor roadway can and has caused the sides of the roadway to collapse and cranes have been known to overturn when driving to close, with severe injuries received by the driver. The CS, where relevant, needs to ensure that the driver of the crane is aware of any potential issue and must seek further guidance if necessary on alternative routes or methods.