

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The questions and answers will not be published but factsheets are available for each module to cover the topics.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

Other categories held:

Pedestrian operated tower crane

Needs only to book:

Tower crane

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

- Tower cranes are commonly used within the construction sector on a wide variety of projects and are usually in place for most of the project. Two main types of tower crane are the horizontal trolley jibs and the luffing jib. Proper pre-use checks are a requirement for safe operation for any type of plant, including tower cranes for which the operator would undertake at the required intervals although some check may be made by the maintenance team at the required intervals. If the operator or maintenance staff fail to properly check all relevant parts and components of the crane, incidents or injuries could occur because faults have affected both performance and safety.
- Checks and inspections that need to be made are indicated in the operator's manuals or other official documentation for the crane. Although the frequency of checks will be determined by the manufacturer, extreme or unusual operating conditions may require more frequent checks. As with lifting equipment, all cranes including towers must be thoroughly examined by a competent person, who will determine when these examinations should take place.
- A requirement under legislation is the devising of a lift plan for the particular lifting operation that is to be carried out, constructed by a lift planner/appointed person. Amongst many factors, the lift plan would have identified all risks, the measures to be taken to mitigate those risks, the sequence of work, the number of personnel involved in the lifting operation and the weight of any loads that are to be lifted. It is also important that all those involved in the lifting operation have been informed of the lift plan's contents and actions required of them. All personnel, including the operator, must take note of the lift plan contents and what is required of each individual as they may notice an error or that something is not correct, and in which an incident could occur. The crane operator should immediately relay any concerns they have with the lift plan to the lift supervisor or appointed person/lift planner. If the lift plan needs amending before or during the lifting operation, only the lift planner/appointed person is allowed to alter the lift plan.
- The lift plan should identify additional external operations that may affect the lifting operation, such as nearby tower and mobile cranes, with the sequence of operations determined before lifting operations begin. If the tower crane is working close to other cranes, the order of work should be determined before work starts and on larger sites, where there may be various crane operations, a crane co-ordinator may be required to determine the sequence of operations.
- As the cranes can stay on a site throughout a project, access to the base of the tower and the conditions for an access route can change frequently. The site manager remains responsible for ensuring clear and unrestricted access to the tower base, although the operator and or members of the lifting team should identify any hazards or obstructions they see and inform the manager immediately. The access ladders in the mast should be kept clean and free of all obstructions to allow the operator (or others such as maintenance staff) to climb the ladder without hindrance. If tools or small items of equipment need to be taken by the operator (or others) up to the cab or jib area, guidance suggests that a suitable method of carrying equipment is the use of a small rucksack that is worn on the chest of the individual.
- On completing work, typical practice for trolley jib types in normal conditions is to place the hook block at minimum radius, with luffing jibs left at the radius prescribed by the manufacturer's or the company's procedures. The jib must also be placed into the out of service condition and able to free slew to minimise the area presented to the prevailing wind and that a check must be made to ensure that, when weather vaning (changing direction in the wind), the jib will not collide with nearby cranes, plant or structures. Post work checks should be undertaken following company procedures so that, if an issue is identified, the maintenance team can carry out early repairs.

Working safely and with others *(Working safely)*

Topic scoring information: 4 correct answers required out of 7 questions presented to pass

- Lifting operations occur in a variety of places within the radius of the crane, including near or next to areas with public access. The area of lift and the area of placing the load must be segregated from nearby

pedestrians and should be planned before work starts by the appointed person. Wherever possible, the moving of a suspended load above other workers or pedestrians should be avoided. Where this is not possible, other measures such as netting around a load or additional securing or protection features should be considered.

- On a site with a multitude of tower cranes, nearby cranes, structures and other plant such a boom-equipped concrete pumps, there is a risk of collision. Anti-collision systems are fitted to minimise contact but operators need to be aware that these systems in general only work with other tower cranes, and not with other types of crane or plant. Radio communication is now the commonest form of contact between the ground-based team and the operator, but the operator needs to ensure that they are receiving the correct instructions intended for them and not for operators of nearby tower cranes.
- It is recognised that, when with working with a number of various contractors and teams on site, that the crane operator can be under pressure as everyone seeks to meet schedules and deadlines. The result has been friction and arguments over contentious issues between the lifting team and other workers. Guidance provided by tower crane employer groups advises that the operator, at the earliest opportunity that issues or concerns become apparent, contacts their supervisor immediately for further advice and direction.
- Conditions on site need to be taken into account before, during and following work. The crane's position should be planned so that is kept well clear of any overhead power lines. Guidance from the Health and Safety Executive advises that at least 15 metres plus the length of the jib is kept from power lines mounted on metal pylons. Slewing with a load, especially one that is near to the rated capacity for the configuration, needs to be undertaken with caution as slewing too fast can subject the jib or boom to additional side stress, which could also cause the load to overshoot the landing place and strike a structure or object.
- Wind speeds should be regularly monitored so that work is only undertaken when they are below the maximum authorised speed as 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. Wind speeds should be regularly given to the crane supervisor because the work schedules may need to alter if rising wind speeds force a crane to stop work. Loads with a large surface area, such as shuttering, can in high winds, move and/or swing and could cause the crane to go out of radius. Operating luffing jib cranes near to minimum radius needs particular care in high winds has caused jibs to be blown backwards.
- Poor housekeeping (areas of untidiness) is an area of concern to employers. Materials, tools and components on the crane's walkways are both a trip hazard to the operator or maintenance team, and can also cause objects to be knocked over the edge which become falling objects that are a hazard to those below. During a changeover between operators in the cab during, for example, a shift break, the operating controls should be isolated from the time the first operator leaves their seat until the replacement operator is properly seated.
- Although now not very common, operators of tower cranes may still need to access the jib, for which a risk assessment and method statement need to be devised. Not only should fall arrest equipment be specified but that a rescue plan must be in place in case the operator (or other person) falls from the jib.

Lifting practices *(Working tasks)*

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

- All lifts should not only be planned but the tower crane must also be kept within the rated lifting capacity for the relevant configuration e.g. radius, number of falls etc. The operator should only lift loads that have been detailed in the lifting plan.
- The crane's rated capacity indicator (RCI) provides warnings to the operator 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 and the RCI must never be overridden during lifting operations, otherwise the crane may over-lift.
- All cranes, including towers, 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, the load can drag along the ground when it is at the point of lift, and an overload situation can occur if the load snags whilst being

dragged. The rated capacity of a crane only applies to a freely suspended load, and where the load is attached to a structure or embedded in the ground, the increased resistance when being lifted can again overload the crane.

- The lifting of personnel in a specifically-designed personnel carrier can take place providing a specific method statement is undertaken for the lifting of persons. This would include additional considerations such as additional thorough examinations and a plan for evacuation at height in case of emergencies or crane malfunction.