

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The questions and answers will not be published but factsheets are available for each module to cover the topics.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

# TRAILER MOUNTED CONCRETE PUMP

## 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 Trailer mounted concrete pump.

### Other categories held:

Truck mounted boom concrete pump

### Needs only to book:

Truck mounted boom concrete pump

**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](http://www.cskills.org/cpcs)

# TRAILER MOUNTED CONCRETE PUMP

## Preparation for work *(Preparation)*

Topic scoring information: 0 correct answers required out of 2 questions presented to pass

- Trailer mounted concrete pumps, as the name suggests, are pumps mounted onto a trailer chassis and towed and/or lifted into the required position. They are designed to pump concrete to given locations via ground-laid pipework that allows concrete to be pumped over great distances and, in some cases, the pipework is also tied to a structure. Trailer mounted pumps can work in tandem with placing booms and concrete-spraying operations, and feed concrete to other plant such as piling rigs. There may be one or several designated operators for a trailer mounted concrete pump. Accidents and incidents do happen when pumping so this factsheet aims to outline some of the issues that operators need to take into account, such as the undertaking of proper pre-use checks which are required for safe operation. Failure to properly check the trailer or pump components before work could mean that, as with all plant and machinery, incidents or injuries occur because faults can affect both performance and safety.
- The necessary checks and inspections are indicated in the operator's or user's manuals for both the host trailer and the pump. Although the frequency of checks will be determined by the manufacturer, extreme or unusual operating conditions, such as continuously using high pumping pressures, may require more frequent checks.
- When a trailer mounted pump is to be positioned for a pumping operation, among the many considerations is suitable access for the mixer vehicle to feed the pump, particularly where a pump is lifted into position. Although the designated operator may not be responsible for selecting the pump position, they still need to make their employer or site management aware of possible access issues for the mixer.
- Most trailer mounted pumps are equipped with stabilisers which both provide the stabilisation required and level the trailer on uneven ground. The stabilisers need to be located on firm ground and checked regularly for sinking, particularly following a spell of wet weather where the supporting ground could have become softer.
- When on site, it is important that a method statement should have been devised which has amongst many factors identifies the risks, the measures to be taken, the sequence of work and the number of personnel involved in the pumping operation. It is also important that all those involved in the pumping operation are informed of the method statement's contents and required actions, particularly those points that involve emergency procedures such as when a blockage occurs.

## Working safely and near to others *(Working safely)*

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

- The pumping operation requires the co-ordination of various personnel within and external to the pour team. Where the pump is being used to supply concrete via a placing boom, the operators of both the pump and boom need to maintain radio contact so that pumping can be stopped immediately if necessary. The pump operator also needs to ensure that the pour team is clear of the whip area of the placing hose (the area it can strike out) before pumping grout through the pipeline.
- During pumping operations, constant checks need to be made to ensure efficiency and safety during the pour. For example, the hopper should be kept reasonably full, as letting it become empty can cause concrete blowback, which spreads concrete over a wide area. The mixer driver is highly vulnerable to blowback. When pumping operations are taking place near to a footpath, pedestrians, who may be oblivious to the dangers of concrete pumping, can also be affected and therefore must be kept well clear by segregating them from the hopper loading and pumping areas. When pumping is taking place on or next to the public highway, the splashing of concrete onto nearby structures, buildings, people and cars needs to be avoided.
- Reversing vehicles are a major hazard on any construction or related site. When a mixer vehicle is being reversed towards the pump, its path must be clear of all personnel, including the pump operator or marshaller.

## Pumping safely and dealing with concrete *(Working tasks)*

Topic scoring information: 3 correct answers required out of 5 questions presented to pass

- Hose whip has caused severe injuries and deaths. The danger zone of a placing hose is the area where hose whip can occur and the pour team need to be made aware of the dangers and kept clear of the hose whip area when grouting is going to take place.
- The operator needs to know the required type of mix as pumping pressures can vary due to different mixes. Mixtures with a high cement content normally require additional pumping pressure and can also set quicker. High pumping pressures can also cause accelerated wear on the pump and pipeline, which may require more frequent checks and inspections. Concrete delivery schedules form part of the planning process. If the delivery of concrete is delayed, the operator needs to take into account that any residual concrete within the pipeline can begin to set, which may cause a blockage and, if left too late, may require the pipework to be changed.
- Wet concrete is a known alkaline which is corrosive to human tissue and can cause third degree burns if it is not removed from the skin in time. No skin should be exposed whilst handling wet concrete during any preparation, pumping and cleaning work.
- The pipeline is under high pressure when concrete is being pumped and part of the pre-use and ongoing checks that should be made are to ensure that the safety pins are located and secure on the pipeline couplers. Missing or defective safety pins mean that the pipeline could burst open at the relevant coupler. If a pipeline coupler needs to be opened, it is important that pipeline pressure is eliminated first.

## Grouting and cleaning out procedures *(Maintenance)*

Topic scoring information: 3 correct answers required out of 5 questions presented to pass

- During preparation work, if the grout is being mixed in the pump's hopper, water must be added with care as excessive water pressure from a hose can cause an ejection of the cement powder, leading to possible health and respiration issues. If a pipeline has been insufficiently grouted, then a blockage within the pump or pipeline could occur. During the pumping operation, it has been known for mixer drivers to wash their delivery shutters and direct the water run-off into the hopper. This affects the mix and can cause segregation, possibly leading again to a blockage.
- Cleaning out can be the most hazardous part of concrete pumping operations so additional care must be taken and the correct cleaning procedures followed. Before the hopper is cleaned, the engine must be switched off and then any hydraulic pressure within the system should be vented to eliminate any remaining pressure.
- Using compressed air to clean the pipeline has caused injury and death so must only be undertaken when all other options are not feasible, and only if it follows a planned safe system of work. As hose whip of the placement hose can occur during cleaning out procedures, it must be suitably restrained to prevent movement and cleaning must only be undertaken in a segregated area. An emergency pressure relief valve needs to be fitted which can dump or release the air pressure if needed. If a sponge ball is used during the cleaning, the ball catcher must be in place before cleaning begins, as sponge balls ejected at high speed have struck nearby personnel with fatal consequences.
- The cleaning out process removes remaining concrete which requires partial or full flushing with water so the procedure and the containment of the contaminated water needs to be planned and controlled before cleaning commences. This is a major consideration when working on the public highway, as collecting and containing waste materials can present difficulties. Where a designated soak-away is being constructed, it needs to be sufficiently sized to accommodate the cleaning waste otherwise, if it is too small, the run-off from the soak-away can contaminate nearby ground.