

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The questions and answers will not be published but factsheets are available for each module to cover the topics.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

Other categories held:

No concessions available

Needs only to book:

No concessions available

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 for work *(Preparation)*

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

- Trenchers are special-purpose machines designed to carry out a particular function of forming a cut or trench below a surface, normally with a cutting wheel or a cutting chain. Although operators tend to be dedicated to this task, incidents and injuries have occurred where care during use has not taken place. This factsheet aims to remind all those who use trenchers of the issues that can arise if good practice techniques not are followed.
- Regular checks and adjustments are a normal part of the operator's duties. When and what is to be checked and/or adjusted is indicated by the manufacturer within the operator's or user's manual. If the operator notices any defect, they need to report it immediately and before the machine is used, seeking the appropriate expertise who can decide whether the trencher can be put to work. An operator could incorrectly diagnose what they consider to be a minor fault when in fact it could be severe and/or hidden, or become rapidly worse throughout the working day. Incidents and injuries have occurred after a machine's performance has deteriorated or where a component has failed. For example, the boom on the rear of the trencher is lifted and lowered using a hydraulic ram. Even a small leak from any part of the hydraulic components could cause the boom to lower unintentionally.
- The trencher's rotating components, such as the wheel or chain, need to be sufficiently guarded in order to minimise contact between people and any rotating parts. Guarding can only be removed for maintenance purposes and when the engine is stopped and isolated. The wheel or chain must never be driven when any part of the guarding is removed or missing. Operators have been severely injured or killed when attempting to clean the teeth of a wheel whilst it was rotating.
- On cutting chain types, one of the adjustments that may need to be made is to the tension of the chain. Manufacturers' instructions indicate both the procedure and the tension that is required. Correct tension is important as chains that are too loose can run or come off a sprocket, whilst a chain that is too tight can overload the bearings, use more fuel as the engine may need to work harder, and also possibly cause the chain to break or snap.
- Cutting teeth on a chain or wheel are responsible, as the name suggests, for providing the cutting or gouging action on the material being excavated. Naturally, the cutting edges will suffer from wear, with the rate of wear dependent on the type of material being cut. The correct type of teeth needs to be selected for the material and task to be undertaken and the teeth must be replaced when the wear rate exceeds manufacturers' guidance. Excessively worn teeth reduce the cutting rate and this, amongst many factors, is both inefficient and places additional strain on the trencher.

Working safely and with others *(Working safely)*

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

- Although the area around any working machine is a hazard, the working area around the cutting wheel or chain is the most hazardous to others who may not be aware of the risks involving rotating parts. As the operator needs to work close to the machine, the area alongside a rotating cutting wheel or chain carries the highest risk for them when cutting a trench, as this is when contact with the rotating parts is most likely. If an assistant is providing help, the operator must ensure that, prior to and during the cutting work, the assistant is in a safe place away from the danger areas.
- When manually clearing spoil directly behind the trencher as it excavates, spades used to clear spoil have struck rotating wheels and chains, causing injuries. When the chain or wheel is raised from the trench, the drive to the chain or wheel must be immediately disengaged before the machine is driven away from the cutting area or when being repositioned. When the trencher is cutting the trench, the operator needs to take into account the risk of trench collapse in certain soils if they are standing directly behind the cutter or chain. Open trenches also needs to be segregated from others as it could be a trip hazard or the sides could collapse.

- When a trench that runs parallel to a slope is being cut, a minimum distance must be kept from the edge and where a trench is being cut near to another open trench, the distance that must be kept is at least the depth of the adjacent trench; otherwise a trench or edge could collapse. For example, if the nearby trench was 1 metre deep, then the trencher must be at least 1 metre away from that trench. The minimum distance that must be kept can depend on the type of ground and should be checked by a competent person before work starts. Poor or wet weather can further affect ground and trench stability.
- As with many machines, trenchers can overturn if they are travelling across a steep slope, as the machine's centre of gravity can exceed the wheel track, or distance between each set of wheels, on the downside and cause instability. Driving too fast or where the ground is uneven on a slope can also cause an overturn. Manufacturers' criteria need to be checked and followed before driving up, down and across slopes.
- The majority of trenchers should be equipped with a roll over protective structure, also known as a ROPS frame or bar although in some cases the cab itself is the approved ROPS. However, operators should be aware that a ROPS frame or cab can only minimise, and not prevent possible injuries to an operator during an overturn providing the seat belt is being worn.
- The nature of the cutting task means that vibration is produced which can have both short and long-term health effects on the operator. Regulations now require the controlling of whole body vibration (WBV) to be controlled, with one consideration being the length of time that the trencher is operated. Most machines are equipped with a suspension-type seat which minimises a certain level of vibration experienced by the operator. However, this is only effective if they adjust the seat according to their weight. Incorrect adjustment can cause a jolting action as the seat 'bottoms out' if the setting is too soft for the operator's weight whilst the seat suspension will not function if the setting is too hard. Excessive vibration of the trencher is a sign that the cutting action is inefficient, for example, that forward speed is too fast or that cutting teeth are becoming excessively worn. In general, minimal vibration is produced when the cutting rate is at its most efficient.

Underground hazards

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

- Before undertaking any below ground excavating or cutting, a thorough check for underground services must take place. A series of procedures should be followed, with the first course of action normally being consultation with utility and service providers – electricity, water/waste water, gas, telecommunications etc. – followed by the use of cable avoidance tools to confirm the exact locations of services. The avoidance tool operator needs to be aware that some cable avoidance tools are limited in detecting certain types of services, such as plastic piping. Where the location of a service is known, it is recommended that only manual or non-mechanical digging should be undertaken within 0.5 metres of a cable or pipe. Other minimum distances or conditions apply and these should be checked with the utility or service provider before work starts. Before work can take place at a new site or new location on a site, a permit to work needs to be provided and which. This is only issued when underground hazards, including voids and buried boulders, have been taken into account.
- During cutting operations, a usual first indication of contact with a buried solid object is a sudden increase in the level of vibration from the trencher. Operators need to stay alert and notice changes in the cutting rate or noises which may indicate contact with unknown objects. Operators should also be aware that injuries have occurred when a cutting chain had caught an unknown underground cable, so that it was pulled out and struck those in the immediate area.