

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The questions and answers will not be published but factsheets are available for each module to cover the topics.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

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

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

- Agricultural tractors, as the name suggests, are machines originally designed for the agricultural sector but adopted by the construction sector to support of construction-related activities such as trailer and bowser towing and using implements such as sweeper brushes. Accidents and incidents do occur and proper pre-use checks are required for safe operation. Failure to properly check the tractor or implement before work could mean that, as with all plant and machinery, injuries are caused because faults can affect both performance and safety.
- The tractor and any implement must be checked according to manufacturer's requirements before work starts by following the information contained in the operator's or user's manual. If the tractor and implement are not checked, or not checked thoroughly, a defect could exist which can cause a near miss or even an injury. For example, one vital check is the operation of the hand or parking brake as a tractor, unlike most plant, may need to be left with its engine running without the operator in the seat when the Power Take Off (PTO) is being used to drive implements. A defective handbrake in an unattended machine can have serious consequences.
- Another check that would be made on an agricultural tractor is the correct operation of the PTO drive. This should be checked before the machine is put to work, otherwise a defective PTO drive may only be noticed after an implement is coupled up ready for use. Any defects, no matter how minor, must be reported immediately as what the operator may consider to be a minor fault, such as outer damage the hydraulic hoses on for example, a front loader attachment, could be a significant but not a visible fault.
- The cab glass and mirrors should be regularly cleaned which aids effective vision. Access to clean the cab glass or mirrors should be planned so that a fall from height can be avoided or minimised. An operator climbing onto parts of the tractor, such as the wheels or rear link arms, could slip or trip and possibly fall. This also applies when checking the tractor for work, as some checks may cause the operator to climb onto parts of the machine or bodywork, such as the mudguards, and again they could slip or fall..

Working safely and with others *(Working safely)*

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

- As tractors are used to drive a static implement using the PTO system, such as a water pump, the engine needs to be left running whilst the operator is out of the cab. When they leave the seat of the tractor, they must ensure the parking brake is fully applied and that all transmission levers are in neutral. This ensures that the tractor cannot move unintentionally as accidents have occurred on other plant after the operator has accidentally moved a gear lever into drive when exiting the cab, and the machine has moved unintentionally.
- Operators sometimes communicate with other workers whilst remaining in the seat of the tractor. In these situations, the handbrake must be applied and the engine stopped. Severe injuries have occurred after a tractor was left in gear with the engine running and, during a conversation with a worker standing by the cab, the operator's foot had slipped off the clutch pedal with the result that the tractor moved. Talking to others at ground level whilst leaning out of the back window is also hazardous and operators have leant on hydraulic operating levers, unintentionally moving an attachment.
- Tractors are used to haul trailers which are loaded by other plant such as excavators. Once positioned but before the trailer is loaded, the tractor operator should exit the cab and stand in a safe place clear of the excavator's working zone. This is because the majority of tractor cabs are not always effective falling object protective structures (FOPS). When tipping a load, a distance of at least 9 metres plus the height of the tipping trailer must be kept from overhead power line mounted on wooden poles. Fatalities have occurred when a tipping trailer has contacted a power line.
- A fully loaded trailer or water bowser places weight onto the rear of the tractor so that less weight is applied through the front wheels. This can have an effect on both the steering and braking meaning that operators need to drive at a speed which allows them to maintain control. The majority of agricultural based tractors are

equipped with independent brakes that allow, in certain situations, either the left or right hand side brake to be applied. Under normal operating conditions, and particularly when towing, the operator must ensure that both brake pedals are locked together – otherwise on braking a roll over could occur.

- The majority of tractor cabs are approved roll over protective structures (ROPS) which, if the machine rolls over, the ROPS cab can minimise, but not eliminate, injuries to an operator providing the seatbelt is being worn.

Fitting and using attachments *(Working tasks)*

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

- Attaching implements to the tractor is hazardous and the results of many injuries, for which extreme care needs to be taken. Before any implement is to be fitted, its compatibility with the tractor needs to be checked. For example, if a trailer or bowser is to be connected, the weight of a fully loaded bowser (which is considerable) or trailer must be taken into account and it must be determined whether the tractor is designed to pull such a load. After connecting a bowser or trailer, the brake system of the trailer must be checked for correct function. If the brakes on a trailer are not working properly, a tractor can overturn when the operator brakes sharply. After connecting a drawbar or trailer implement, the tractor's rear link arms need to be raised or kept clear of the implement's drawbar otherwise, during turning, a link arm can foul the drawbar.
- When mounting an implement onto the tractor's rear (three-point) linkage arms, the area directly behind the tractor and implement should be kept clear of personnel. When minor adjustments need to be made when connecting the implement, the operator or others should not operate the hydraulic lever by leaning into the cab from the rear, as operators have been trapped and crushed between the cab and a raised implement when the hydraulics have overreacted.
- Many tractors are now fitted with external controls that operate the link arms, with the controls normally fitted on one or both sides of the rear mudguards. Again, to avoid any trapping, the lift zone or area must be kept clear of all personnel when the controls are activated. After an implement is connected, the link arm check chains must be adjusted so that any sideways swing of a fully mounted implement is minimised. A swinging implement could, when turning sharply, make the tractor unstable and cause it to overturn.
- Removing implements also requires care. Before any implement or trailer is disconnected, the operator needs to ensure that the implement is left in a safe place and is chocked, braked and/or supported so that that it is stable when it is disconnected from the tractor.

Power take off systems (PTO)

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

- Within the construction and allied sectors, tractors are increasingly used to drive powered implements such as brushes, water pumps, and bowser pumps that require the connection and disconnection of the power take-off shaft. This requires extreme care as many fatalities have occurred as a result of PTO shaft operation.
- Before the PTO shaft is connected to the tractor, the engine must be switched off and the tractor's handbrake applied. Implements have different operating speeds, usually 540 r/m and 1000 r/m, so the speed of the implement must be checked against the speed setting or configuration of the tractor. An implement driven at too high a speed could have serious consequences.
- When a PTO shaft is connected, the operator must ensure that the spring-loaded locking pin on the shaft's universal joint is fully engaged when sliding it onto the tractor's splined shaft, so that the PTO shaft cannot slide off. The outer guards of the PTO shaft should have securing or restraining chains at either end of the shaft. One chain should be secured to the tractor and one chain should be secured to the implement, preventing the outer guard from rotating when the PTO drive is rotating. If the guards do not fully cover the

rotating universal joints then the PTO shaft cannot be used until this has been corrected. Operators have been killed after becoming tangled in exposed parts of a rotating shaft.

- Prior to use, the operator should check that the PTO shaft does not foul any part of the tractor or implement, such as such as the drawbar or drawbar pin of a bowser fitted with a pump. The function of the drive must be checked, particularly that the PTO drive disengages when the PTO operating lever or switch is placed into neutral. All personnel must be kept well clear of any rotating parts of the implement as material may fly out from a previously used implement when the operator is carrying out checks or when the tractor is working.
- On certain implements such as flails, blockages can occur and stall the implement. Before any clearing work takes place, the PTO lever or switch must be placed into neutral and the tractor's engine switched off. The same situation applies to hydraulically-driven implements. Operator clearing blockages have been killed when the implement has restarted unintentionally.