



NPTC

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**CITY & GUILDS NPTC LEVEL 2
CERTIFICATE OF COMPETENCE
IN THE
SAFE USE OF PLANT MACHINERY**

ASSESSMENT SCHEDULE

City & Guilds NPTC Level 2 Certificate of Competence in the Safe Use of Plant Machinery

Qualification information

This document contains the information that centres need to offer the following qualifications:

Qualification title and level	City & Guilds qualification number	Ofqual accreditation number
City & Guilds NPTC Level 2 Certificate of Competence in the Safe Use of Plant Machinery	APLM02	100/2013/5

Guided Learning Hours (GLH) – 12 hours.

Total Qualification Time (TQT) – 14 hours.

Candidate Information

Introduction

The scheme will be administered by City & Guilds.

City & Guilds will:

- Publish
 - scheme regulations
 - assessment schedule
 - assessment material
- Approve centres to co-ordinate and administer the scheme
- Set standards for the training of Verifiers and Assessors
- Recruit, train and deploy Verifiers
- Manage verification
- Issue certificates to successful Candidates

The Certificate of Competence

Certificates of competence will be awarded to Candidates who achieve the required level of competence in the Units to which their Certificate relates.

Instruction

Attendance at a course of instruction is not a pre-requisite for an application for an assessment but potential Candidates are strongly advised to ensure that they are up to the standards that will be expected of them when they are assessed.

City & Guilds does **not** hold a register of instructors; however instruction will normally be available from recognised training providers and/or centres of further or higher education active in the areas covered by this certificate. Further information on training may be obtained from the local Assessment Centre.

Access to Assessment

Assessment Centres will be responsible for arranging assessment on behalf of a Candidate. Assessment may only be carried out by an Assessor approved by NPTC for that scheme. Under no circumstances can either instructors involved in the preparation of candidates, or the candidates' work-place supervisors, or anyone else who might have a vested interest in the outcome, carry out the assessment.

The minimum age limit for Candidates taking certificates of competence is 16 years. There is no upper age limit.

Assessment

Assessment is a process by which it is confirmed that the Candidate is competent in the Units within the award to which the assessment relates. It is a process of collecting evidence about his/her capabilities and judging whether that evidence is sufficient to attribute competence.

The candidate must be registered through an NPTC approved Assessment Centre for this qualification prior to assessment.

The result of the assessment will be recorded on the assessment report form.

The schedule of assessment contains the criteria relating to:

- Observation of practical performance
- Assessment of knowledge and understanding

Performance Evaluation

The result of each assessment activity is evaluated against the following criteria:

- 4 = Meets or exceeds the assessment criteria by displaying a level of practical performance and/or underpinning knowledge, with no 'minor' or 'critical' faults. (Competent).
- 3 = Meets the requirements of the assessment criteria for both the practical performance and the underpinning knowledge, with some 'minor' faults but no 'critical' faults. (Competent).
- 2 = Does not fully satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or being deficient in underpinning knowledge leading to the recording of minor faults. (Not yet competent).
- 1 = Does not satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or safely or being deficient in underpinning knowledge leading to the recording of a critical fault. (Not yet competent).

A list of registered Assessment Centres is available from City & Guilds (www.nptc.org.uk)

Verification

Verification is a process of monitoring assessment; it is an essential check to confirm that the assessment procedures are being carried out in the way that City & Guilds has laid down. The overall aim of verification is to establish a system of quality assurance that is acceptable in terms of both credibility and cost effectiveness.

Approved Assessors will be subject to an annual visit by the Verifier at a time when assessments are being undertaken.

A selection of assessment reports completed by the assessor will be evaluated by a City & Guilds approved verifier.

Compliance with the verification requirements is a pre-requisite for Assessors remaining on City & Guild's list of approved assessors.

Complaints and Appeals

City & Guilds and its Assessment Centres have a formal Complaints and Appeals procedure. In the event of any dissatisfaction with the arrangements and conditions of assessment, the candidate should first contact the Assessment Centre through whom the assessment was arranged and submit the complaint in writing.

For further information on City & Guild's Equal Opportunities Policy and Complaints and Appeals Procedures, please refer to www.nptc.org.uk

Learning Outcomes

The candidate will be able to:

Identify aspects of legislation which apply to the safe preparation and operation of plant machinery

Prepare the machine for work safely without risk to themselves, other people or the environment

Undertake a verbal hazard and risk assessment on the site and the machine

Carry out daily and routine maintenance on plant machinery

State the identified knowledge that underpins understanding of driving plant machinery

Manoeuvre a plant machine and operate it safely without risks to themselves, other people and the environment

State procedures to be observed when cleaning and inspecting the machine and reporting defects.

Guidance Notes for Candidates and Assessors

The assessment is divided into 3 units.

1. Pre-Use Safety - Plant Machinery (Compulsory)
 2. Operate a 180° or 360° Excavator (Optional)
- Or
3. Operate a Loader (Optional)

Candidates must achieve all assessment activities in the appropriate units.

Candidates who hold the City & Guilds NPTC Certificate of Competence in Tractor Driving and Related Operations - Unit 4, are credited with Unit 3 of this qualification - Operate a Loader.

Qualification Endorsement

The qualification will be endorsed either:

- a) Plant Machine - 180° Excavator **and/or**
- b) Plant Machine - 360° Excavator **and/or**
- c) Plant Machine - Loader

Candidates seeking qualification endorsement 'a)' are required to successfully achieve units 1 and 2

Candidates seeking qualification endorsement 'b)' are required to successfully achieve units 1 and 2

Candidates seeking qualification endorsement 'c)' are required to successfully achieve units 1 and 3

Safe Practice

Appropriate Personal Protective Equipment (PPE) must be worn at all times.

The plant machine and any other equipment must be operated in such a way that the Candidate, Assessor, other persons or equipment are not endangered.

All ancillary equipment, when detached must be safely parked.

Failure to operate safely and comply with these requirements will result in the Candidate not meeting the required standard.

It is recommended that suitable barrier creams are used when necessary.

Validation of Equipment

A Manufacturer's instruction book or other operators' manual should be available.

All equipment being used for this assessment must comply with the relevant requirements of the Provision and Use of Work Equipment Regulations (PUWER) 1998.

Any lifting equipment must comply with the relevant requirements of the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998

Plant machinery must comply with Department of Transport and Road Traffic Acts where relevant.

Any appropriate loader and/or excavator complying with legal requirements is acceptable for the assessment, provided it is suitably equipped for **all** assessment items to be carried out.

Candidates who undertake this assessment and are judged 'competent' are reminded of their legal obligation to receive/undertake appropriate additional training in the use of any equipment that differs from that used during the assessment, but which they are nevertheless qualified to use

Additional Information

May be sought from the relevant manufacturers' operator manuals or any other appropriate training or safety publication.

Unit 1 • Pre-Use Safety • Plant Machinery

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA
<p>1. Demonstrate knowledge of legal and safety requirements relating to the use of a loader/excavator in the context of:</p> <p>What is involved in a Risk Assessment</p> <p>Statutory guarding requirements</p> <p>The use of a loader/excavator on or near the public highway or other areas to which the public has access</p> <p>Personal Protective Equipment (PPE)</p> <p>Personal safety precautions to be taken when loading ancillary equipment into the machine</p> <p>Mobile fuel storage and transportation requirements</p>	<p>Risk Assessment must be specific to:</p> <ul style="list-style-type: none"> Site Task Machine <p>Risk Assessment must contain:</p> <ul style="list-style-type: none"> Identified hazards Evaluated risk Control measures to be implemented Emergency procedures <p>Risk Assessment must be communicated to operator</p> <p>All moving parts, belts, pulleys and chains must be guarded</p> <p>Any loader/excavator driven on the public highway must:</p> <ul style="list-style-type: none"> Be road legal Have a current road fund licence (vehicle excise duty) and a minimum of third party insurance cover (to conform to Road Traffic Act requirements) Be driven by someone holding a suitable, valid drivers licence. Have an orange flashing beacon when driven on dual carriageways (other road types, subject to individual Risk Assessment). Comply with speed limits <p>Warning signs erected</p> <p>Police informed if there is going to be a lot of road use that may cause hold ups</p> <p>Lane closed or coned <i>off</i></p> <p>PPE requirements are subject to individual Risk Assessment but must include:</p> <ul style="list-style-type: none"> Safety boots 'Non snag' clothing May include hard hat, ear defenders, face/eye protection, high vis clothing (plus hand protection for maintenance work) <p>For safe lifting and handling:</p> <ul style="list-style-type: none"> Avoid manual handling where possible Use mechanical aids Use safe lifting techniques (bend knees and keep back straight) <p>Mobile containers used must:</p> <ul style="list-style-type: none"> Be specifically designed for fuel storage Have a non-spill spout Be clearly labelled Have securely fitting caps Be kept away from any sources of ignition

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA
<p>2. Check the site for hazards</p>	<p>Walk the site and remove or mark hazards Confirm that the condition of the site is acceptable for the operation to take place Report to the appropriate person if the site condition is unsuitable</p>
<p>3. Demonstrate knowledge of the potential hazards that could arise when using plant machinery and the correct procedure/precautions to be observed when driving with or without loads under the following conditions:</p> <p>Driving at speed</p> <p>Up and down slopes</p> <p>Over rough ground</p> <p>Across a slope</p> <p>Demonstrate knowledge of factors to be taken into account when turning on slopes</p>	<p>Driving at high speed increases risk of losing control of vehicle Braking distance is increased</p> <p>Avoid excessive speed Avoid sharp turns</p> <p>vehicle could stall or runaway Loss of traction Applying brakes during descent could result in skidding</p> <p>Appropriate low gear should be selected before encountering slope Clutch should not be disengaged during descent Trailers with heavy loads should have additional auxiliary braking system.</p> <p>Increased risk of load shifting Weight of load could lead to excess "bouncing" of dumper truck and possibly driver injury</p> <p>Maintain low speed to reduce "bouncing" Try to avoid larger bumps and potholes Loads should be secured to prevent movement</p> <p>Increased risk of load shifting Load will tend to pull down hill Increased risk of vehicle rolling</p> <p>Observe correct procedure in the event of overturning Maintain slow speed when driving across slopes Maintain low centre of gravity if possible Using wide wheel track settings increases stability of vehicle</p> <p>Severity of slope Stability of vehicle Type of load Ground conditions</p>

Unit 1 • Pre-Use Safety • Plant Machinery (continued)

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA
4. Demonstrate knowledge of economic fuel use whilst maintaining maximum efficiency and work output	Ensure air cleaner is clean Use of engine speed control Use of machine meter and correct gear selection
5. Identify and explain function of all controls	All controls identified and function explained in accordance with the manufacturers handbook/operators manual. These must include: Starting devices Engine stop control Brakes Excavator/Loader boom/bucket controls Other hydraulic controls
6. Interpret instrument readings	Function and significance of the information displayed by the instruments and warning lights identified by manufacturers manual/operators handbook
7. Carry out daily pre-use checks and maintenance to the loader/excavator	Correct pre-use checks to be undertaken as recommended by the manufacturer's hand book/Operators manual. Observing relevant safety and cleanliness precautions Check to ensure safety of operator and loader/excavator: Tyres (visual inspection for condition and pressure) Or Tracks (visual inspection for condition, tension, grouser plates (if fitted) and rubber pads (if fitted)) Stop Control Clutch pedal free play (if applicable) Brake pedal free travel Correct function of all lights and direction indicators Function of seat belts if fitted Condition of hydraulic pipes/rams Attachment pin positions Ensure: Fuel level is adequate Transmission/hydraulic oil levels are at correct level Coolant level adequate Engine air cleaner is clean Joints adequately lubricated Frequency of checks undertaken Report findings where appropriate Act on findings where appropriate

Unit 2 Operate an Excavator

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA
<p>Demonstrate knowledge of additional legal requirements specifically relating to using an excavator</p>	<p>LOLER '98 requirements: All lifting equipment should be subject to a regular, thorough inspection Ensure lifting equipment has adequate strength for proposed use Information on lifting capacity and safe working load should be available to operators Awareness of overhead hazards such as low bridges/buildings and cables Safe excavator position according to risk assessment when moving on site Excavator should be locked in transport position during transport to prevent risk of impact with other vehicles/people Excavator should not travel on public highway while carrying a load Safe operator position when operating excavator</p>
<p>2 Mount excavator, carry out safety checks and start engine</p> <p>Demonstrate knowledge of the correct cold starting procedure</p>	<p>Candidates must mount and dismount from vehicle cab using the hand and foot holds provided and face into the cab Ensure engine is not under load before starting Gears in neutral position Hydraulic services in neutral Engine started using correct procedure for engine condition (warm or cold) as stated in manufacturer's handbook.</p> <p>Manufacturer's recommended procedure for cold starting relevant to the vehicle (if not demonstrated)</p>
<p>3 Carry out pre-use checks to the excavator unit</p>	<p>Check: Excavator attachment pins Hydraulic pipes Couplings Teeth security Steelwork (for signs of fatigue/cracking)</p> <p>Lubricate as appropriate: Attachment pins Pivots Controls Check stability of machine</p>
<p>4. Demonstrate knowledge of the Safe Working Load of the boom</p>	<p>Increased boom length puts more leverage on the fulcrum point therefore decreasing the effective lifting capacity and making the vehicle unstable.</p>
<p>5. Remove excavator bucket and refit or fit appropriate bucket for the operation</p>	<p>Excavator attachment changed using method prescribed by manufacturer Adopt safe methods at all times Safe use of hydraulic controls Ensure that attachment is secured safely Comply with manual handling regulations</p>
<p>6. Check that the brakes operate and the excavator is safe to use</p>	<p>Check: Brake operation in accordance with the manufacturer's instruction book At a suitable safe speed on a hard uniform surface Stopping efficiency</p>
<p>7. Manoeuvre machine to work site</p>	<p>Position excavator boom for transporting Hazard warning beacon switched on if required is Negotiate terrain Undertake reverse manoeuvre</p>
<p>8. Position machine for working/excavating</p>	<p>Position of stabiliser(s) if fitted Risk of tipping over minimised Swing area checked for obstacles Proximity of other hazards identified including overhead powerlines</p>

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA
9. Carry out an excavation	<p>EITHER A</p> <ul style="list-style-type: none"> Excavate trench in accordance with specification Efficient use of boom and bucket Identify and avoid additional hazards encountered Check trench for correct dimensions Maintain an even depth <p>ORB</p> <ul style="list-style-type: none"> Carry out the excavation in accordance with the specification Efficient use of boom and bucket Identify and avoid additional hazards encountered Check trench for correct dimensions Maintain an even depth (if appropriate)
10. Reinstate the excavation	<p>EITHER A</p> <ul style="list-style-type: none"> Fill trench with excavated material to return the land to appropriate condition <p>ORB</p> <ul style="list-style-type: none"> Reinstate/backfill the excavation to return the land to an appropriate condition
11. Complete task and park excavator	<ul style="list-style-type: none"> Clear and tidy work area as necessary Move excavator to safe site Correct parking for boom Apply handbrake Switch engine off Remove ignition key
12. Demonstrate knowledge of factors to consider when cleaning excavators and reasons for cleaning	<ul style="list-style-type: none"> Identify PPE to be used Remove any unwanted residues safely using appropriate method <ul style="list-style-type: none"> • Compressed air • Water • Brush Dispose of waste material according to company policy and legislation <p>Excavator is cleaned to:</p> <ul style="list-style-type: none"> Prevent corrosion Facilitate maintenance and adjustments Prevent personal contamination Prevent hazardous operating conditions Prevent soiling of roads
13. Demonstrate knowledge of need to inspect excavator after use	<ul style="list-style-type: none"> Inspect excavator for: <ul style="list-style-type: none"> Wear Damaged and/or missing components Use operator's instruction book as appropriate Report findings to appropriate person to ensure defects are rectified before excavator is next used

Unit 3 Operate a Loader

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA
<p>1. Demonstrate knowledge of additional legal requirements specifically relating to using an loader</p>	<p>LOLER '98 requirements: All lifting equipment should be subject to a regular, thorough inspection Ensure lifting equipment has adequate strength for proposed use Information on lifting capacity and safe working load should be available to operators Awareness of overhead hazards such as low bridges/buildings and cables Safe loader position according to risk assessment when moving on site Loader should be kept close to ground if moving when carrying a load Loader should not travel on public highway while carrying a load Safe position when operating excavator</p>
<p>2. Mount loader, carry out safety checks and start engine</p> <p>Demonstrate knowledge of the correct cold starting procedure</p>	<p>Candidates must mount and dismount from vehicle cab using the hand and foot holds provided and face into the cab Ensure engine is not under load before starting Gears in neutral position Hydraulic services in neutral Engine started using correct procedure for engine condition (warm or cold) as slated in manufacturer's handbook.</p> <p>Manufacturer's recommended procedure for cold starting relevant to the vehicle (if not demonstrated)</p>
<p>3. Carry out daily maintenance and pre-use checks to loader</p>	<p>Check: Loader attachment pins Hydraulic pipes Couplings Teeth security Steelwork (for signs of fatigue/cracking)</p> <p>Lubricate as appropriate: Attachment pins Pivots Controls</p>
<p>4. Ensure tyre pressures are appropriate for loader work</p>	<p>Tyre pressures checked and adjusted if necessary in accordance with manufacturer's guidance</p>
<p>Either:</p> <p>5 (a) Demonstrate knowledge of functions of Safe Load Indicator and the relationship between boom length and load</p>	<p>Ensures that the boom is not overloaded Series of lights show increasing strain put on boom Buzzer sounds if safe working load is breached Steps should be taken to reduce the load</p> <p>Increased boom length puts more leverage on the fulcrum point therefore decreasing the effective lifting capacity and making the vehicle unstable. Heavier loads should be lifted with the boom fully retracted</p>
<p>Or:</p> <p>5 (b) Demonstrate knowledge of reasons for checking loader attachment to prime mover and need for awareness of safe working loads</p>	<p>Sub-frame attachment bolts and securing devices work loose as they are subject to much movement and forces. They therefore need to be checked regularly</p> <p>Lifting heavier loads could cause the rear wheels of the vehicle to be lifted off the ground therefore counterbalance weights may be required</p> <p>The operator should be aware of the safe working load of the loader as recommended by the manufacturer and how this equates to the type of loads being carried.</p>
<p>ASSESSMENT ACTIVITIES</p>	<p>ASSESSMENT CRITERIA</p>

<p>6. Demonstrate knowledge of factors to consider when removing and refitting a bucket attachment</p>	<p>Clear communication established between driver and fitter assistant Loader attachment changed using method prescribed by manufacturer Adopt safe methods at all times Safe use of hydraulic controls Ensure that attachment is secured safely Comply with manual handling regulations</p>
<p>7. Manoeuvre loader to work site</p>	<p>Position loader boom for transporting Hazard warning beacon switched on if required Negotiate terrain Undertake reverse manoeuvre</p>
<p>8. Ensure trailer is in suitable position for loading material from ground level</p> <p>Load material from the ground into the trailer</p>	<p>Clear communication established between loader operator and trailer operator Trailer positioned to give minimum travel, so far as is reasonably practicable Avoid site hazards including overhead power lines</p> <p>Avoid excessive material spillage Identify and avoid hazards including overhead power lines Manoeuvre machine safely when loaded Work within optimum capacity of loader Ensure even loading of trailer Trailer not overloaded Ensure minimum wheel slip/tyre wear Avoid contact between loader and trailer</p>
<p>9. Complete task and park loader</p>	<p>Clear and tidy work area as necessary Move vehicle to safe site Lower loader to ground Position loader safely (no risk of injury to others) Apply handbrake Switch engine off Remove ignition key</p>
<p>10. Demonstrate knowledge of factors to consider when cleaning loaders and reasons for cleaning</p>	<p>Identify PPE to be used Remove any unwanted residues safely using appropriate method</p> <ul style="list-style-type: none"> • Compressed air • Water • Brush <p>Dispose of waste material according to company policy and legislation</p> <p>Loader is cleaned to:</p> <ul style="list-style-type: none"> Prevent corrosion Facilitate maintenance and adjustments Prevent personal contamination Prevent hazardous operating conditions Prevent soiling of roads
<p>11. Demonstrate knowledge of need to inspect loader after use</p>	<p>Inspect loader for:</p> <ul style="list-style-type: none"> • Wear • Damaged and/or missing components <p>Use operator's instruction book as appropriate Report findings to appropriate person to ensure defects are rectified before loader is next used</p>