



# Level 2 Certificate of Competence in Remote-Control Machinery

July 2020 Version 1.2

**Qualification Handbook**

## Qualification at a glance

<b>Industry area</b>	Horticulture, Agriculture, Forestry and Arboriculture
<b>City &amp; Guilds number</b>	0014-38
<b>Age group</b>	16-19, 19+
<b>Entry requirements</b>	Centres must ensure that any pre-requisites stated in the <i>What is this qualification about?</i> section are met.
<b>Assessment</b>	<p>To gain this qualification, candidates must successfully achieve the following assessments:</p> <p>Practical assessment with oral questioning by a City &amp; Guilds NPTC approved assessor. The assessor can be the same individual who carried out the training or could be a different person. The assessor <b>must</b> be approved and registered with City &amp; Guilds NPTC.</p> <p>The assessment must be a stand-alone process that is separate to the training, and <b>cannot</b> be spread out across the length of the training course i.e. the assessment is conducted at the end of the training course or on a separate day.</p>
<b>Grading</b>	Pass only
<b>Approvals</b>	Full centre approval Qualification approval
<b>Support materials</b>	n/a
<b>Registration and certification</b>	Registration and certification of this qualification is through the Walled Garden and is subject to end dates.

Title and level	Size (GLH)	TQT	City & Guilds qualification number	Ofqual accreditation number
Level 2 Certificate of Competence in Remote-Control Machinery	7	10	0014-38	603/5618/2

<b>Version and date</b>	<b>Change detail</b>	<b>Section</b>
1.0 February 2020	First version	
1.1 July 2020	Addition of certification modules	1. Introduction
1.2 July 2020	Updates to stump grinder and winching units	Unit 224 to 227

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# 1 Introduction

## Purpose of this qualification

The following purpose is for the **Level 2 Certificate of Competence in Remote Control Machinery (603/5618/2)**

Area	Description
OVERVIEW	
Who is this qualification for?	Individuals who operate remote controlled machinery as part of their work in agriculture, horticulture, forestry, landscaping or other industries. It will provide the individual with the knowledge, understanding and skills required to prepare and operate a piece of remote-controlled machinery safely and to industry standards in line with current legislation.
What does this qualification cover?	It covers preparing and operating remote-controlled mowers, stump grinder and winches.
WHAT COULD THIS QUALIFICATION LEAD TO?	
Will the qualification lead to employment, and if so, in which job role and at what level?	This qualification will support progression into employment where safe operation of remote-control machinery is part of the role. Safe operational skills are key to efficient use, good working practice and preventing accidents, leading to business benefits in terms of less machinery damage and down time.
Why choose this qualification over similar qualifications?	This is a specialist qualification demonstrating the individual is able to safely operate remote controlled machinery to a recognised level of competency.
Will the qualification lead to further learning?	Individuals who successfully complete this qualification could go on to increase their level of proficiency through consolidation practice within a working environment, or develop skills in safely operating other land-based machinery, e.g., Level 2 Certificate of Competence in the Safe Use of Tractor Mounted Hedge and Verge Cutters
WHO SUPPORTS THIS QUALIFICATION?	
Employer/Higher Education Institutions	British Association of Landscape Industries
FURTHER INFORMATION	Please refer to the Qualification Handbook, available on the City & Guilds NPTC website, for more information on the structure of this qualification, the content of the units, and assessment.

## Qualification structure

For the **Level 2 Certificate of Competence in Remote-Control Machinery (Mower)** learners must be trained and assessed in the units listed below. The qualification will be endorsed to the context of the unit assessed:

Unit number	Unit title	GLH
<b>Learners must achieve</b>		
222	Prepare a remote-controlled mower for operation	4
223	Operate a remote-controlled mower	3

For the **Level 2 Certificate of Competence in Remote-Control Machinery (Stump Grinder)** learners must be trained and assessed in the units listed below. The qualification will be endorsed to the context of the unit assessed:

Unit number	Unit title	GLH
<b>Learners must achieve</b>		
224	Prepare a remote-controlled stump grinder for operation	4
225	Operate a remote-controlled stump grinder	3

For the **Level 2 Certificate of Competence in Remote-Control Machinery (Winch)** learners must be trained and assessed in the units listed below. The qualification will be endorsed to the context of the unit assessed:

Unit number	Unit title	GLH
<b>Learners must achieve</b>		
226	Prepare a remote-controlled winch for operation	4
227	Operate a remote-controlled winch	3

## Qualification Endorsement Certification Module numbers

<b>Certification module number</b>	<b>Certification module title</b>
915	Level 2 Certificate of Competence in Remote-Control Machinery (Mower) (Cylinder)
916	Level 2 Certificate of Competence in Remote-Control Machinery (Mower) (Rotary)
917	Level 2 Certificate of Competence in Remote-Control Machinery (Mower) (Flail)
918	Level 2 Certificate of Competence in Remote-Control Machinery (Mower) (Reciprocating Knife)
919	Level 2 Certificate of Competence in Remote-Control Machinery (Stump Grinder)
920	Level 2 Certificate of Competence in Remote-Control Machinery (Winch)

## 2 Centre requirements

### Approval

New centres will need to gain centre approval. Existing City & Guilds centres who do not currently offer this qualification must go through the Qualification Approval (QAP) process. Please email [qasupport@cityandguilds.com](mailto:qasupport@cityandguilds.com) for further information on the approval process

### Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following requirements:

- be technically competent in the areas in which they are delivering
- be able to deliver across the breadth and depth of the content of the qualification being taught
- have recent relevant teaching and assessment experience in the specific area they will be teaching, or be working towards this
- demonstrate continuing CPD.

### Physical resources

Centres must be able to demonstrate that they have access to the equipment and technical resources required to deliver this qualification and its assessments.

### Assessment Guidance for the Assessor

Staff assessing these qualifications must be approved Certificate of Competence City & Guilds NPTC Assessors. They do not have to be independent, but can be, and can have been involved with the training of the Candidate. This qualification can only be assessed by an Assessor who is suitably qualified and meets the requirements of the awarding body.

Certificate of Competence City & Guilds NPTC Assessors must meet the following requirements:

- show competence and provide evidence of industry expertise in the qualification/s they wish to assess
- hold the qualification as a candidate and have been technically evaluated as an Assessor
- be up to date with their verification and relevant first aid
- demonstrate continuing technically relevant CPD

Compliance with these requirements is a pre-requisite for Assessors remaining on the list of approved Assessors.

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 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 and approved Assessors will be subject to a regular 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 Quality Consultant.

### **Safe Practice**

Appropriate PPE must be worn at all times

All equipment must be operated in such a way that the Candidate, Assessor, other persons, animals or other equipment are not endangered.

If these conditions are not observed this will result in the Candidate not meeting the required standard.

### **Validation of Equipment**

A Manufacturer's instruction book or other operator's manual should be available for the Candidate to use during the assessment if required.

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

Vehicles must comply with department of Transport and road Traffic acts where relevant.

Any appropriate item of machinery complying with current legal requirements is acceptable for the assessment, provided it is suitably equipped for all assessment activities to be carried out.

### **Age restrictions**

This qualification is approved for learners aged 16 – 19, 19+.

### 3 Administration

Approved centres must have effective quality assurance systems to ensure valid and reliable delivery and assessment of qualifications. Quality assurance includes initial centre registration by City & Guilds and the centre's own internal procedures for monitoring quality assurance procedures.

Consistent quality assurance requires City & Guilds and its associated centres to work together closely; our Quality Assurance Model encompasses both internal quality assurance (activities and processes undertaken within centres) and external quality assurance (activities and processes undertaken by City & Guilds).

#### External quality assurance

City & Guilds will undertake external moderation activities to ensure that the quality assurance criteria for this qualification are being met. Centres must ensure that they co-operate with City & Guilds staff and representatives when undertaking these activities.

City & Guilds requires the Head of Centre to

- facilitate any inspection of the centre which is undertaken on behalf of City & Guilds
- make secure arrangements to receive, check and keep assessment material secure at all times, maintain the security of City & Guilds confidential material from receipt to the time when it is no longer confidential and keep completed assignment work and examination scripts secure from the time they are collected from the candidates to their dispatch to City & Guilds.

#### Malpractice

Please refer to the City & Guilds guidance notes *Managing cases of suspected malpractice in examinations and assessments*. This document sets out the procedures to be followed in identifying and reporting malpractice by candidates and/or centre staff and the actions which City & Guilds may subsequently take. The document includes examples of candidate and centre malpractice and explains the responsibilities of centre staff to report actual or suspected malpractice. Centres can access this document on the City & Guilds website.

Examples of candidate malpractice are detailed below (please note that this is not an exhaustive list):

- falsification of assessment evidence or results documentation
- plagiarism of any nature
- collusion with others
- copying from another candidate (including the use of ICT to aid copying), or allowing work to be copied
- deliberate destruction of another's work
- false declaration of authenticity in relation to assessments
- impersonation.

These actions constitute malpractice, for which a penalty (eg disqualification from the assessment) will be applied.

Where suspected malpractice is identified by a centre after the candidate has signed the declaration of authentication, the Head of Centre must submit full details of the case to City & Guilds at the earliest opportunity. Please refer to the form in the document *Managing cases of suspected malpractice in examinations and assessments*. Alternatively please complete the form, JCQ/M1. Copies of this form can be found on the JCQ website: <http://www.jcq.org.uk>

### **Access arrangements and special consideration**

We have taken note of the provisions of equalities legislation in developing and administering this specification.

We can make arrangements so that candidates with disabilities, special educational needs and temporary injuries can access the assessment. These arrangements must be made before assessment takes place.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Please refer to the *JCQ access arrangements and reasonable adjustments and Access arrangements - when and how applications need to be made to City & Guilds* for more information. Both are available on the City & Guilds website:

**<http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments>**

### **Special consideration**

We can give special consideration to candidates who have had a temporary illness, injury or indisposition at the time of the examination. Where we do this, it is given after the examination.

Applications for either access arrangements or special consideration should be submitted to City & Guilds by the Examinations Officer at the centre. For more information please consult the current version of the JCQ document, *A guide to the special consideration process*.

### **Language of examinations**

City & Guilds has a responsibility to ensure that candidates can be assessed in the following languages only:

- English
- English in Northern Ireland
- English in Wales.

## 4 Units

## Unit 222

## Prepare a remote-controlled mower for operation

<b>Level:</b>	2
<b>GLH</b>	7

### What is this unit about?

The aim of this unit is to provide the learner with the knowledge, understanding and skills required to prepare a remote-control mower for operation.

This will be done in the context of the cutting mechanism:

- a) Cylinder
- b) Rotary
- c) Flail
- d) Reciprocating Knife

### Learning outcomes

In this unit, learners will be able to

1. Prepare a remote-control mower

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

## Learning outcome:

### 1. Prepare a remote-control mower

## Topics:

- 1.1 Site-specific hazard and risk assessment
- 1.2 Relevant health and safety legislation in relation to mower operations
- 1.3 Personal Protective Equipment (PPE) for mower operations
- 1.4 Fuel requirements for the power unit and related safety precautions
- 1.5 Safety features of the equipment being used
- 1.6 The function of all controls
- 1.7 Daily pre-use checks to the mower
- 1.8 How to refuel the mower
- 1.9 Maintain the cutting mechanisms

### Topic 1.1

Carry out a site-specific hazard and risk assessment, may include:

- Slopes (according to machine capabilities)
- Ground conditions
- Contact with moving parts
- Manual handling
- Overhead obstructions
- Surface obstructions
- People and/or animals
- Ditches/waterways
- Hot components
- Exhaust fumes
- Fuel and oil
- Bio hazards
- Dust/fungal spores
- Flying debris
- Contact with the cutting mechanism
- Insect bites/stings
- Fire

Walk the site and report to include:

- Evaluate risks
- Implement appropriate control measures
- Confirm that the condition of the site is acceptable

- Confirm who they would report to if the site condition is unsuitable

Safe operator positioning and safe working distances to include:

- Operator positioning according to manufacturer's guidance
- Clear sight of machine at all times
- Within operating range of remote control
- Safe working distance according to manufacturer's guidance
- Emergency procedure(s) explained in the event of a dangerous occurrence

Situations when the emergency stop may need to be activated may include:

- Machine runaway/overturn situation
- Obstruction of cutting mechanism
- Protected species
- People
- Operator fatigue

### **Topic 1.2**

Pieces of health and safety legislation in relation to the preparation and use of the machine may include the following:

- Manufacturers minimum age requirements (if applicable)
- Health and Safety at Work Etc. Act (HASAWA):
  - Duties imposed on the employer/employee/others
- Provision and Use of Work Equipment Regulations (PUWER):
  - Machine must be suitable for the task
  - Machine must be properly maintained according to manufacturer's recommendations
- Management of Health and Safety at Work Regulations (MHSWR):
  - Risk assessments must be completed and communicated to all relevant persons
- Manual Handling Operations Regulations (MHOR):
  - Avoid manual handling where possible, use safe lifting techniques
- Control of Substances Hazardous to Health (COSHH):
  - fuel handling and protection from contaminants
- Personal Protective Equipment Regulations (PPE):
  - PPE must be provided, maintained and worn
- The Control of Noise at Work Regulations:
  - Hearing protection must be used over 85 decibels (dB)
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR):
  - Certain categories of injuries must be reported
- Wildlife and Countryside Act (WCA):
  - Operations must be carried out avoiding disturbance to wildlife
- Health & Safety (First Aid) Regulations:
  - Need for an accident book and knowledge of where it is kept
- The Control of Vibration at Work Regulations:
  - To reduce the risk to health from vibrations

### **Topic 1.3**

PPE required for operation may include (subject to risk assessment):

- Eye protection
- Head protection
- Hearing protection
- Dust mask
- Hand protection
- Non-snag clothing
- High visibility clothing
- Safety footwear

#### **Topic 1.4**

The power unit and fuel requirements may include:

- Petrol
- Diesel
- Battery

Safety precautions that should be observed with flammable liquids (if applicable) may include:

- No smoking/naked flames
- Allowing engine to cool before re-fuelling
- Avoiding contact with hot surfaces
- Fuel topped up to correct level
- Any spillage is dealt with using the correct method
- Be kept away from any sources of ignition

Fuel storage and transportation requirements (if applicable) may include:

- Container 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

#### **Topic 1.5**

The guarding requirements for the mower:

- All moving and hot parts must be guarded

The meaning of the safety decals:

- Operator and bystander protection decals

The safety features:

- Emergency stop control(s)

#### **Topic 1.6**

For the mower being used, identify controls and explain their function in accordance with the manufacturers handbook/operator's manual to include:

- All controls applicable to the mower being used (to include both the remote-control unit and the mower)

#### **Topic 1.7**

Carry out daily pre-use checks, referring to manual if required, may include:



- All pre-use checks applicable to the mower (to include both the remote-control unit and the mower)
- Sufficient battery charge in remote unit

### **Topic 1.8**

How to correctly refuel the mower (if applicable)

- Refuelled in accordance with manufacturer's handbook/operator's manual
- Checking the fuel level – allowing for expansion
- Cap correctly refitted

### **Topic 1.9**

All safety precautions when maintaining the cutting mechanism.

#### a) Cylinder mowers

The condition of the cutting mechanism to include:

- Check the bed knife and cylinder for wear and damage

Carry-out appropriate checks and adjustments to include:

- Bed knife to cylinder clearance
- Carry out adjustments in accordance with manufacturer's handbook

The process for maintaining the cutting cylinder to include:

- Back lapping procedure explained

#### b) Rotary mower

Carry-out appropriate checks to include:

- Blade(s) condition
- Blade(s) security

The process for maintaining rotary blades to include:

- How to safely remove blade(s) from the mower
- sharpening the blade
- How to balance the blade
- How to check that fitting is correct and tightness/torque setting is appropriate

Reasons for balancing rotary blades may include:

- Reducing vibration
- Reducing noise
- Reducing bearing wear
- Protecting the operator

#### c) Flail mower

Carry-out appropriate checks to include:

- Flail condition
- Flail security

The process for maintaining flails to include:

- How to safely remove/secure flail
- Sharpening/reversing/replacing the flail

- How to check that fitting is correct and tightness/torque setting is appropriate

Reasons for maintaining balance may include:

- Reducing vibration
- Reducing noise
- Reducing bearing wear
- Protecting the operator

d) Reciprocating Knife Mower

Carry-out appropriate checks to include:

- Knife condition
- Knife security

The process for maintaining the reciprocating knife to include:

- How to safely remove knife from the mower
- Sharpening the knife sections
- How to refit the knife to the mower
- How to check that fitting is correct including adjustment of knife clips, ledger plates, wear plates and knife register

## Unit 223

## Operate a remote-controlled mower

<b>Level:</b>	2
<b>GLH</b>	3

### What is this unit about?

The aim of this unit is to provide the learner with the knowledge, understanding and skills required to operate a remote-control mower.

### Learning outcomes

In this unit, learners will be able to

1. Operate a remote-control mower

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

## Learning outcome:

### 1. Operate a remote-control mower

#### Topics:

- 1.1 Test start and stop procedure
- 1.2 Operating adjustments to the mower
- 1.3 Operating the mower safely and in accordance with agreed specification
- 1.4 Carrying out work in a manner which minimises environmental damage
- 1.5 The quality of the completed mowing operation
- 1.6 Cleaning and storing equipment correctly after use

#### Topic 1.1

Carry out a test start and stop procedure to include:

- Start the machine
- Check emergency stop control(s)
- Check remote control is functional (e.g. by remotely operating a function on the mower)
- Stop the machine

#### Topic 1.2

Operating adjustments to the mower may include:

- Forward speed adjustment
- Track/wheel bias adjustment
- Height adjustment
- Other adjustments as relevant to machine

#### Topic 1.3

Operate the mower safely and in accordance with agreed specification to include:

- Move the mower to the work site
- Operating range parameters established
- Task started at an appropriate point
- Appropriate forward speed maintained
- Suitable engine speed
- Work checked following 'trial' cut
- Minimise overlap/misses
- Safe procedures followed throughout

#### Topic 1.4

Carry out work in a manner which minimises environmental damage to include:

- Climatic conditions are acceptable
- Ground conditions are acceptable
- Turns made without excessive damage to the surface

### **Topic 1.5**

Walk site and comment on the finish to include:

- Finish complies with agreed specification

### **Topic 1.6**

Reasons for regularly cleaning the mower may include:

- Prevents personal contamination
- Prevents corrosion
- Makes visual inspection for damage possible
- Facilitates maintenance and adjustments

The PPE required for cleaning operations may include (subject to risk assessment):

- Eye protection
- Safety footwear
- Overall/coverall
- Hand protection
- Face shield
- Dust mask

Methods of cleaning the mower may include:

- A brush
- Compressed/blown air
- Water/pressure washer

## Unit 224

## Prepare a remote-controlled stump grinder for operation

<b>Level:</b>	2
<b>GLH</b>	4

### What is this unit about?

The aim of this unit is to provide the learner with the knowledge, understanding and skills required to prepare a remote-controlled stump grinder for operation.

### Learning outcomes

In this unit, learners will be able to

1. Prepare a remote-control stump grinder

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

## Learning outcome:

### 1. Prepare a remote-control stump grinder

#### Topics:

- 1.1 Site-specific hazard and risk assessment
- 1.2 Precautions to be observed when working adjacent to public highways
- 1.3 Relevant health and safety legislation in relation to stump grinder operations
- 1.4 Personal Protective Equipment (PPE) for stump grinder operations
- 1.5 Fuel requirements for the power unit and related safety precautions
- 1.6 Safety features of the equipment being used
- 1.7 The function of all controls
- 1.8 Daily pre-use checks to the stump grinder
- 1.9 How to refuel the stump grinder power unit
- 1.10 Maintenance on the stump grinder

#### Topic 1.1

The hazards, evaluate the associated risks and implement appropriate control measures relating to the site, task and machine, may include:

- Slopes (according to machine capabilities)
- Ground conditions
- Contact with moving parts
- Manual handling
- Overhead obstructions
- Surface obstructions
- Underground obstructions
- People and/or animals
- Ditches/waterways
- Hot components
- Exhaust fumes
- Noise
- Fuel and oil
- Biohazards
- Dust/fungal spores
- Flying debris
- Contact with the cutting mechanism
- Insect bites/stings
- Fire

Walk the site and verbal report to include:

- Evaluate risks

- Implement appropriate control measures
- Confirm that the condition of the site is acceptable
- Confirm who they would report to if the site condition is unsuitable

Safe operator positioning and safe working distances, to include:

- Operator positioning according to manufacturer's guidance
- Clear view of the cutting operation at all times
- Within operating range of remote control
- Safe working distance according to manufacturer's guidance
- Emergency procedure(s) explained in the event of a dangerous occurrence

Situations when the emergency stop may need to be activated may include:

- Machine overturn situation
- Obstruction of cutting mechanism or contact with hazardous material
- Third party access
- Operator fatigue
- Presence of utilities

### **Topic 1.2**

Precautions to be observed when working adjacent to highways, may include:

- Wear high visibility clothing
- Warning signs deployed in accordance with department for transport requirements
- Exclusion zone / barriers set up to protect both operators and public
- Position machine safely
- Direction of flying debris
- Discharge barriers set up as appropriate
- Ensure constant awareness of traffic

### **Topic 1.3**

Relevant pieces of health and safety legislation in relation to the preparation and use of the machine, may include:

- Manufacturers minimum age requirements (if applicable)
- Health and Safety at Work Etc. Act (HASAWA):
- Duties imposed on the employer/employee/others
- Provision and Use of Work Equipment Regulations (PUWER):
- Machine must be suitable for the task
- Machine must be properly maintained according to manufacturer's recommendations
- Management of Health and Safety at Work Regulations (MHSWR):
- Risk assessments must be completed and communicated to all relevant persons
- Manual Handling Operations Regulations (MHOR):
- Avoid manual handling where possible, use safe lifting techniques
- Control of Substances Hazardous to Health (COSHH):
- Fuel handling and protection from contaminants



- Personal Protective Equipment Regulations (PPE):
- PPE must be provided, maintained and worn
- The Control of Noise at Work Regulations:
- Hearing protection must be used over 85 decibels (dB)
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR):
- Certain categories of injuries must be reported
- Wildlife and Countryside Act (WCA):
- .1 Operations must be carried out avoiding disturbance to wildlife
- Health & Safety (First Aid) Regulations:
- Need for an accident book and knowledge of where it is kept
- The Control of Vibration at Work Regulations:
- To reduce the risk to health from vibrations

#### **Topic 1.4**

Suitable personal protective equipment (PPE) required for operation, may include (subject to risk assessment):

- Eye protection
- Head protection
- Hearing protection
- Dust mask
- Hand protection
- Non-snag clothing
- High visibility clothing
- Safety footwear

#### **Topic 1.5**

The power unit fuel requirements may include:

- Petrol
- Diesel

Safety precautions that should be observed with flammable liquids, may include:

- No smoking/naked flames
- Allowing engine to cool before re-fuelling
- Avoiding contact with hot surfaces
- Fuel topped up to correct level
- Any spillage is dealt with using the correct method
- Be kept away from any sources of ignition

Fuel storage and transportation requirements may include:

- Container 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

### **Topic 1.6**

The safety features are in accordance with manufacturer's requirements and machine type, which may include:

- Emergency stop control(s)
- Decals
- Guarding
- Operator presence system (OPS)

The guarding requirements for the winch are in accordance with manufacturer's requirements and current legislation.

The meaning of the safety decals:

- Operator and bystander protection decals

### **Topic 1.7**

For the stump grinder being used, identify controls and explain their function in accordance with the manufacturers handbook/operator's manual to include:

- All controls applicable to the stump grinder being used

### **Topic 1.8**

Carry out daily pre-use checks, referring to manual if required, may include:

- All pre-use checks applicable to the stump grinder being used (to include both the remote-control unit and the stump grinder) – as specified in the manual

### **Topic 1.9**

How to correctly refuel the power unit to include:

- Refuelled in accordance with manufacturer's handbook/operator's manual
- Checking the fuel level – allowing for expansion
- Cap correctly refitted

### **Topic 1.10**

Maintenance of the stump grinder as outlined in manufacturers or operator's instructions may include:

- Wear appropriate PPE
- Ensure that machine is made safe
- Key removed
- Engine oil level sufficient
- Air filter inspected and cleaned
- Cooling system inspected and cleaned and coolant level checked (if appropriate)
- Fuel system, starting and charging systems inspected and commented on
- Electrical system checked for damage
- Greasing and lubricating points
- Pulleys, clutches, shafts etc. (if applicable)
- Drive belts in good condition and tensioned correctly (if applicable)
- Hydraulic system checked for leaks or damage
- Linkages, pivots, springs etc. Inspected and lubricated
- Hydraulic oil level sufficient (if applicable)
- Sufficient battery charge in remote unit (if applicable)

Inspect cutting system, ensuring that the cutting teeth:

- Are sharp
- Clearance is correct
- Are secure
- Within wear tolerances

The removal and replacement of cutters to include:

- As per manufacturer's instruction book
- Ensure that machine is safe to work on
- Ensure that damaged cutters identified
- Use of setting tools
- Remove cutters
- Replace new/replacement cutters
- Tighten all nuts to correct torque setting
- Clearances checked on completion
- Correct sequence alignment

Possible causes of damage to cutters may include:

- Loose mountings / bolts / nuts
- Over-tightened bolts / nuts
- Soil damage
- Damage from metal / stone / hard objects

Consequences of poorly maintained cutters to include:

- Machine not working efficiently
- Cutting mechanism overheating/warping
- Increased likelihood of jamming
- Increased vibration

Reassemble cutting mechanism to include:

- Reassembled according to manufacturer's recommendations

## Unit 225

## Operate a remote-controlled stump grinder

<b>Level:</b>	2
<b>GLH</b>	3

### What is this unit about?

The aim of this unit is to provide the learner with the knowledge, understanding and skills required to operate a remote-control stump grinder.

### Learning outcomes

In this unit, learners will be able to

1. Operate a remote-control stump grinder

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

## Learning outcome:

### 1. Operate a remote-control stump grinder

#### Topics:

- 1.1 Manoeuvring stump grinder to the work position
- 1.2 Preparing the material for grinding
- 1.3 Test start and stop procedure
- 1.4 Carrying out the stump grinding operation
- 1.5 The quality of the completed stump grinding operation
- 1.6 The reasons for cleaning equipment after use
- 1.7 Post-operational checks to be carried out on the stump grinder
- 1.8 The reason for carrying out post-operational checks

#### Topic 1.1

Safely manoeuvres and position the stump grinder for operation, may include:

- Awareness of slopes and obstacles on the ground
- Use of banks person if required when reversing / moving stump grinder where visibility impaired
- Machine moved at safe speed
- Appropriate use of operator controls
- Chocking of wheels/tracks on slopes (if applicable)
- Avoid turning on slopes / ramps with tracked machine
- Operator must be on upper side when ascending or descending slopes
- Extreme care when climbing over an obstacle (e.g. Roots, holes, steps) or change of angle at top of ramp as machine can rear-up / slew violently
- Hydraulic fluid must be warm before moving/operating machine
- Ensure ramps / bridging to support weight of machine are strong enough

#### Topic 1.2

Prepare stump for grinding operations, ensuring that:

- Cable detection equipment (if appropriate)
- Remove debris from around stump base
- Cut stump down to ground level (if applicable)
- Erect screen/barriers as appropriate

Environmental considerations may include:

- Decomposed or dead material producing fungal spores
- Physical hazard to public
- Hazards to road users

- Risk of blocking drains, watercourses etc.
- Hazards to wildlife, plants and trees
- Hazards to property

### **Topic 1.3**

Carry out a test start and stop to include:

- Start the machine (safe starting zone selected)
- Check emergency stop control(s)
- Check all remote control functions
- Stop the machine

### **Topic 1.4**

Operate machine to grind a tree stump of at least 380mm diameter as per site specification, to include:

- Safety procedures are adopted
- Area clear of unauthorised persons
- Engine speed/gear set to obtain optimum output
- Optimum depth of swath across stump is obtained
- Stump is ground to specified depth
- Arisings disposed of / back-filled appropriately

Factors to consider when re-positioning machine to remove stump in sections, to include:

- Disengage cutter wheel
- Ensure cutter wheel is stationary before repositioning
- Back-fill arisings to improve stability

Convert machine to transport position to include:

- Isolate power source and convert to transport position as per manufacturer's recommendations

Site checked and tidied to include:

- Site is safe and secure
- Debris cleared according to site specification
- Site breakdown

### **Topic 1.5**

Carry out work in a manner which minimises environmental damage.

### **Topic 1.6**

- Work carried out to site specification.

### **Topic 1.7**

Reasons for regularly cleaning the stump grinder may include:

- Biosecurity
- Prevents corrosion

- Makes visual inspection for damage possible
- Facilitates maintenance and adjustments

The PPE required for cleaning operations may include (subject to risk assessment):

- Eye protection
- Safety footwear
- Overall/coverall
- Hand protection
- Face shield
- Dust mask

Methods of cleaning the stump grinder may include:

- A brush
- Compressed/blown air
- Water/pressure washer

### **Topic 1.8**

The reason for carrying out post-operational checks:

- Stump grinder inspected to establish any wear, damaged and/or missing components through use

## Unit 226

## Prepare a remote-controlled winch for operation

<b>Level:</b>	2
<b>GLH</b>	4

### What is this unit about?

The aim of this unit is to provide the learner with the knowledge, understanding and skills required to prepare a remote-control winch for operation.

This unit is suitable for a powered mounted or portable winch.

This unit is not suitable for forest machine winches or an equivalent or substitute to the Certificates of Competence in Forestry Machine Operations.

### Learning outcomes

In this unit, learners will be able to

1. Prepare a remote-control winch for operation



## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

## Learning outcome:

### 1. Prepare a remote-control winch for operation

#### Topics:

- 1.1 Site-specific hazard and risk assessment
- 1.2 Safety considerations when operating winching equipment
- 1.3 Relevant health and safety legislation in relation to winching operations
- 1.4 Personal Protective Equipment (PPE) for winching operations
- 1.5 Fuel requirements for the power unit and related safety precautions
- 1.6 Safety features of the equipment being used
- 1.7 The function of all controls
- 1.8 Daily pre-use checks to the winch
- 1.9 How to refuel the winch power unit
- 1.10 The maintenance requirements for the winch
- 1.11 Ancillary component checks

#### Topic 1.1

The hazards, evaluate the associated risks and implement appropriate control measures relating to the site, task and machine may include:

- Slopes
- Ground conditions
- Contact with moving parts
- Manual handling
- Overhead obstructions
- Surface obstructions
- Underground obstructions
- People and/or animals
- Ditches/waterways
- Hot components
- Exhaust fumes
- Noise
- Fuel and oil
- Biohazards
- Dust/fungal spores
- Flying cables/debris
- Contact with the winching mechanism
- Insect bites/stings
- Fire.

Walk the site and verbally report to include:

- Evaluate risks
- Implement appropriate control measures
- Confirm that the condition of the site is acceptable

- Confirm who they would report to if the site condition is unsuitable

Safe operator positioning and safe working distances to include:

- Operator positioning according to manufacturer's guidance
- Clear view of the winching operation at all times, which may include use of banks person
- Within operating range of remote control
- Safe working distance according to manufacturer's guidance
- Emergency procedure(s) explained in the event of a dangerous occurrence

Situations when the emergency stop may need to be activated may include:

- Unexpected machine movements
- Obstruction of winching mechanism
- Obstruction of cable
- Anchor point failure
- People
- Operator fatigue

### **Topic 1.2**

Safety factors that should be taken into consideration when using winching equipment may include:

- Maximum line pull/breaking load/winch duty cycle
- Winch overload protection devices
- Compatibility of winch components and load
- Suitability of anchor points
- Use of ground anchors
- Operator exclusion zones (e.g. Offset pulling triangle)
- Avoidance of contact with tensioned cable
- Two people present when winching
- Never winch with less than 5 wraps of cable around the drum

### **Topic 1.3**

Relevant pieces of health and safety legislation in relation to the preparation and use of the machine, may include the following:

- Health and Safety at Work Etc. Act (HASAWA):
  - Duties imposed on the employer/employee/others
- Provision and Use of Work Equipment Regulations (PUWER):
  - Machine must be suitable for the task
  - Machine must be properly maintained according to manufacturer's recommendations
- Management of Health and Safety at Work Regulations (MHSWR):
  - Risk assessments must be completed and communicated to all relevant persons
- Manual Handling Operations Regulations (MHOR):
  - Avoid manual handling where possible, use safe lifting techniques
- Control of Substances Hazardous to Health (COSHH):
  - Fuel handling and protection from contaminants
- Personal Protective Equipment Regulations (PPE):

- PPE must be provided, maintained and worn
- The Control of Noise at Work Regulations:
  - Hearing protection must be used over 85 decibels (dB)
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR):
  - Certain categories of injuries must be reported
- Wildlife and Countryside Act (WCA):
  - Operations must be carried out avoiding disturbance to wildlife
- Health & Safety (First Aid) Regulations:
  - Need for an accident book and knowledge of where it is kept
- The Control of Vibration at Work Regulations:
  - To reduce the risk to health from vibrations
- Lifting Operations and Lifting Equipment Regulations (LOLER):
  - Inspection and suitability of equipment

#### **Topic 1.4**

Personal Protective Equipment (PPE) required for operation may include (subject to risk assessment):

- Eye protection
- Head protection
- Hearing protection
- Hand protection
- Non-snag clothing
- High visibility clothing
- Safety footwear

#### **Topic 1.5**

The power unit fuel requirements may include:

- Petrol
- Diesel
- Battery
- 

Safety precautions that should be observed with flammable liquids may include:

- No smoking/naked flames
- Allowing engine to cool before re-fuelling
- Avoiding contact with hot surfaces
- Fuel topped up to correct level
- Any spillage is dealt with using the correct method
- Be kept away from any sources of ignition

Fuel storage and transportation requirements may include:

- Container 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

### **Topic 1.6**

The safety features are in accordance with manufacturer's requirements and machine type, which may include:

- Emergency stop control(s)
- Decals
- Guarding
- Clutch mechanism

The guarding requirements for the winch are in accordance with manufacturer's requirements and current legislation.

The meaning of the safety decals:

- Operator and bystander protection decals

### **Topic 1.7**

For the winch being used, identify controls and explain their function in accordance with the manufacturer's handbook/operator's manual:

- All controls applicable to the winch being used for the assessment (to include both the remote-control unit and the winch)

### **Topic 1.8**

Daily pre-use checks, referring to manual if required. It is acceptable for the candidate to use a pre-use check sheet for this activity may include:

- All pre-use checks applicable to the winch being used (to include both the remote-control unit and the winch) – as specified in the manual

### **Topic 1.9**

How to correctly refuel the power unit (if applicable) to include:

- Refuelled in accordance with manufacturer's handbook/operator's manual
- Checking the fuel level – allowing for expansion
- Cap correctly refitted
- Sufficient battery charge in remote unit

### **Topic 1.10**

The maintenance of the winch as outlined in manufacturer's or operator's instructions may include:

- Wear appropriate PPE
- Lubrication
- Alignment of drive components
- Operation of automatic worm brake
- Drum clutch adjustment
- Drum freespool function
- Roller fairlead/guide bars
- Cable clamp
- 

### **Topic 1.11**

Maintenance and inspection of ancillary components as per manufacturers recommendations, may include:

- Slings
- Strops
- Pulleys
- Chains
- Shackles
- Pins
- Ground anchors
- Air damper

## Unit 227

## Operate a remote-controlled winch

<b>Level:</b>	2
<b>GLH</b>	3

### What is this unit about?

The aim of this unit is to provide the learner with the knowledge, understanding and skills required to operate a remote-control winch.

This unit is aimed at operators using a powered mounted or portable winch.

This unit is not suitable for forest machine winches or an equivalent or substitute to the Certificates of Competence in Forestry Machine Operations.

### Learning outcomes

In this unit, learners will be able to

1. Operate a remote-control winch

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

### Learning outcome:

#### 1. Operate a remote-control winch

#### Topics:

- 1.1 Preparing to use the winch
- 1.2 Operating the winch safely and in accordance with agreed specification
- 1.3 Carrying out work in a manner which minimises environmental damage
- 1.4 Cleaning and storing equipment correctly after use
- 1.5 Post-operational checks to be carried out on the winch and associated equipment

#### Topic 1. 1.

Prepare to operate the winch appropriate to the work situation, which may include:

- Estimate load and assess winch suitability
- Establish effective communication/hand signals
- Check winch is safe to use
- Check remote control unit is functional
- Appropriate positioning and distance of winch from load
- Unwind appropriate/optimum length of cable
- Attach to load/anchor point
- Use of pulley block
- Use of trunk protector (if applicable)
- Use of anchor points
- Use of air damper
- Choice of winching method
  - Direct pull
  - Offset pull
  - Mechanical advantage pull
  - One-to-one or two-to-one

Set up and configuration of ancillary components as per manufacturers recommendations with consideration to working load limits (WLL), safe working loads (SWL) and minimum breaking strain (MBS), may include:

- Slings
- Strops
- Pulleys
- Chains
- Shackles
- Pins
- Ground anchors

- Air damper

### **Topic 1.2**

Operate the winch appropriate to the work situation, which may include:

- Appropriate PPE
- Establish effective communication/hand signals
- Find suitable anchor point
- Attach to anchor
- Use trunk protector (if applicable)
- Safety of operator and bystander(s) observed at all times
- Hands kept clear of winch components when spooling
- Correct use of winching aids
- Do not touch or cross cable when in tension
- Vehicle/material left in safe position, secured/chocked if necessary
- Avoidance of snatch loading
- Correct re-spooling of cable
- All components are compatible and configured correctly
  
- Winching methods to include:
  - Direct pull
  - Offset pull
  - Mechanical advantage pull
  - One-to-one or two-to-one

### **Topic 1.3**

Carry out work in a manner which minimises environmental damage to include:

- Site to be left as per specification
- Care to avoid wildlife habitats

### **Topic 1.4**

Reasons for regularly cleaning the winch may include:

- Prevents personal contamination
- Prevents corrosion
- Makes visual inspection for damage possible
- Facilitates maintenance and adjustments

PPE required for cleaning operations may include (subject to risk assessment):

- Eye protection
- Safety footwear
- Overall/coverall
- Hand protection
- Face shield
- Dust mask

Methods of cleaning the winch may include:

- A brush



- Compressed/blown air
- Water/pressure washer

### **Topic 1.5**

Reason for carrying out post-operational checks to include:

- Winch and associate equipment inspected to establish any wear, damaged and/or missing components through use

## Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on [www.cityandguilds.com](http://www.cityandguilds.com).

### City & Guilds Centre Manual

This document provides guidance for organisations wishing to become City & Guilds approved centres, as well as information for approved centres delivering City & Guilds qualifications. It covers the centre and qualification approval process as well as providing guidance on delivery, assessment and quality assurance for approved centres.

It also details the City & Guilds requirements for ongoing centre and qualification approval, and provides examples of best practice for centres. Specifically, the document includes sections on:

- the centre and qualification approval process
- assessment, internal quality assurance and examination roles at the centre
- registration and certification of candidates
- non-compliance and malpractice
- complaints and appeals
- equal opportunities
- data protection
- management systems
- maintaining records
- internal quality assurance
- external quality assurance.

### Our Quality Assurance Requirements

This document explains the requirements for the delivery, assessment and awarding of our qualifications. All centres working with City & Guilds must adopt and implement these requirements across all of their qualification provision. Specifically, this document:

- specifies the quality assurance and control requirements that apply to all centres
- sets out the basis for securing high standards, for all our qualifications and/or assessments
- details the impact on centres of non-compliance

Our Quality Assurance Requirements document encompasses the relevant regulatory requirements of the following documents, which apply to all UK centres working with City & Guilds:

- Ofqual's General Conditions of Recognition

The **centre homepage** section of the City & Guilds website also contains useful information on

- **Walled Garden:** how to register and certificate candidates on line
- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for e-assessments.

## Useful contacts

<b>UK learners</b> General qualification information	<b>E:</b> <b>learnersupport@cityandguilds.com</b>
<b>International learners</b> General qualification information	<b>E:</b> <b>intcg@cityandguilds.com</b>
<b>Centres</b> Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	<b>E:</b> <b>information@cityandguilds.com</b>
<b>Single subject qualifications</b> Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	<b>E:</b> <b>singlesubjects@cityandguilds.com</b>
<b>International awards</b> Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	<b>E:</b> <b>intops@cityandguilds.com</b>
<b>Walled Garden</b> Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	<b>E:</b> <b>walledgarden@cityandguilds.com</b>
<b>Employer</b> Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	<b>T:</b> +44 (0)121 503 8993 <b>E:</b> <b>business@cityandguilds.com</b>

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## About City & Guilds

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

## City & Guilds Group

The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Licence to Practice (land-based qualifications) and Learning Assistant (an online e-portfolio).

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