City & Guilds Level 2 Certificate of Competence in Chainsaw Maintenance and Cross-cutting (0039-20)

August 2022 Version 1.3

Assessment Pack – Centre and Candidate Version

Version and date	Change detail	Section
1.0	First version	
1.1 August 2021	Assessor instructions updated	Introduction
1.2 October 2021	AO name added to qualification title Typos corrected	Throughout
1.3 August 2022	Formatting changes Updated logo Updated ‘Sources of general information’	Throughout Front cover Appendix 1

Contents

Introduction

This assessment relates to the unit in the Qualification handbook. The assessment can be achieved at pass only. If any task is not yet met the candidate is unsuccessful.

This assessment is for unit 201 Chainsaw maintenance and cross-cutting covering the following learning outcomes:

1. Carry out chainsaw maintenance
2. Carry out cross-cutting with a chainsaw

General guidance on the requirements for assessment can be found in the Assessor Guidance document available on the City & Guilds web site **www.nptc.org.uk**

The assessor must complete the Practical Table mark sheet for each candidate which should be kept by the assessor for a minimum period of twelve months.

Record of assessment (ROA)

A prepopulated record of assessment must be completed by the assessor following an assessment. The number of outcomes is listed above, these must be ticked into the relevant met or not met sections of the ROA.

ARAS Forms

An Assessment Result Advice Slip (ARAS form) must be completed by the assessor following an assessment. The ARAS is not a certificate but, based on the evidence of the candidate's performance, is a recommendation to City & Guilds that the candidate is either met or not met the assessment criteria. All feedback is to be recorded by the assessor on the feedback section of the ARAS form.

Assessment Time

The expected assessment time for this qualification is 2.5 – 3 hours.

Site/workshop requirements:

Sufficient workspace to accommodate more than one candidate
Work bench with facility to hold a chainsaw securely (vice)
Hand cleaning facilities
Outside area for fuelling and starting the chainsaw
sufficient timber of suitable length and weight, to exert tension and compression (200mm to 380mm diameter)

Equipment/Machinery:

Petrol driven chainsaw (maximum guide bar 15 inch)
Additional chainsaw components to aid assessment
Suitable and sufficient range of chainsaw maintenance tools
Relevant chainsaw operator's manual
Waste disposal facilities
First aid kit

Consumables:

Fuel and chainsaw oil
Cleaning materials

This is not an open book assessment however additional technical information may be sought from the relevant manufacturer's operator manuals or any other appropriate training or safety publication.

Practical observation descriptor table

201- Chainsaw maintenance and cross-cutting

Activity number and description from check list		Assessment criteria
1	Explain the risk assessment process	The risk assessment process may contain the following five steps: • identify the hazards • decide who might be harmed and how • evaluate the risks and decide on precautions • record the findings and implement them • review and update the assessment as necessary
2	Identify the hazards, risks and controls associated with the site, task and machine	Identify hazards, risks and controls relevant to the site task and machine
3	Outline emergency planning relevant to the working area	Emergency planning relevant to a work site may include: • site location • grid reference • what three words • designated meeting place • nearest access point • street name/district • type of access (public road/light vehicles, four-wheel drive) • suitable helicopter landing area • phone number of nearest doctors • location of nearest accident and emergency hospital and phone number • works manager contact details • your own contact number/mobile number • other
4	Outline responsibilities as an operator under the: Health and safety at work act Provision and use of work equipment regulations (PUWER)	Outline key points from the legislation and industry good practice listed below: Health and Safety at Work Act (HASWA): • follow training received • take reasonable care of their own and other people's safety • other Provision and Use of Work Equipment Regulations (PUWER): • equipment is maintained • equipment is fit for purpose • other

5	State providers of industry good practice	Providers of industry good practice may be: • Forest Industry Safety Accord (FISA) • Regional forestry bodies • Arboricultural Forestry Advisory Group (AFAG) • Arboricultural Association (AA) • Other
6	Explain why it is important to maintain chainsaws to manufacturers recommendations	The importance of maintaining chainsaws to manufacturers recommendations may include: • machine is safe to use • reduces machinery repair downtime • other
7	Identify and explain the function of all the key safety features	Explain the function of all chainsaw safety features: Guide bar cover: • protects and covers the bar and chain Chain with low kick back characteristics: • reduces kickback Exhaust: • noise reduction and reduces emissions Combined chain brake and front hand guard: • stops the chain rotating and protects the hand Chain catcher: • catches a derailed chain Anti-vibration mounts: • reduces vibration On/off switch: • stops engine Safety decals-hand/eye/ear defender symbols: • provides mandatory information Throttle trigger lockout: • stops accidental throttle operation Rear chain breakage guard: • protects the rear hand
8	Select appropriate maintenance tools for the power unit and cutting systems in accordance with operator's handbook	Appropriate tools for the maintenance of both the chainsaw power unit and guidebar/chain are selected

9	State hazards associated with battery powered equipment	Hazards associated with battery powered equipment may be: • incorrect compatibility of battery/machine • machine being live when the battery is in place • machine may not have an on/off switch • battery misalignment • battery storage • battery disposal • battery dislodging and falling from the machine • electric shock • short circuiting and combustion when charging • malfunction due to water contamination • lack of power • charge time and charging requirements • other
10	Explain battery power unit maintenance and checks	Battery power unit maintenance and checks should include: • battery guide tracks are inspected and cleaned • battery is not damaged, cracked or deformed • battery has sufficient charge • machine air intake and cooling system cleaned and inspected for damage • keypad is inspected for damage and cleaned (if applicable) • battery compartment is inspected for damage • other
11	State the benefits associated with the use of battery powered machines	Benefits associated with the use of battery powered machines may include: • reduced weight • reduced vibration • reduced noise • no emissions • clearer communication with others on site • less maintenance requirements • more accurate operation due to no engine torque • no need for the transportation of fuel • no risk of fuel spillages • other

12	Explain the function and maintenance requirements of individual components Maintain power unit in accordance with operator's handbook using appropriate tools	Spark plug: • provides ignition, maintenance may include inspection, cleaning and checking of electrode gap Maintenance: • engine cover and spark plug removed • plug cleaned or replaced as necessary • wear/damage assessed • gap size checked and set if necessary Air filter: • prevents debris entering the carburettor and helps maintain the correct air/fuel ratio, maintenance may include inspection and thorough cleaning Maintenance: • excess debris removed from around filter prior to removal • filter removed, protecting carburettor • filter inspected maintained and cleaned appropriate to condition • filter refitted correctly Chain brake: • stops the chain, maintenance may include inspection of the chain brake system, cleaning or replacement Maintenance: • clear debris from chain brake mechanism /clutch housing • chain brake band checked for wear Cooling system: • Prevents the engine from overheating, maintenance may include inspection and cleaning Maintenance: • remove covers where appropriate and remove excess debris from fins and cylinder Exhaust system: • reduces noise and emissions, maintenance may include inspection, security of nuts/bolts, spark arrestor and removal of residue Maintenance: • check all nuts and bolts for security • remove excess residue from the silencer • check condition and security of spark arrestor if applicable

		Clutch/drive system: • provides drive to the chain, maintenance may include inspection, cleaning and removal of the clutch Maintenance for inboard clutch: • remove retaining clip • dismantle sprocket assembly • sprocket checked for wear and condition • clean crankshaft stub and grease needle cage where appropriate • re-assemble Maintenance for outboard clutch: • if appropriate piston locked as per manufactures guidance • unscrew clutch weights according to manufacturer's guidance • clean crankshaft stub and grease needle cage where appropriate • re-assemble Sprocket: • drives/pushes the chain along the guidebar, maintenance may include inspection and replacement due to wear exceeding manufacturers tolerances Maintenance: • sprocket checked for wear and condition Starter mechanism: • engages the flywheel, maintenance may include cleaning, inspection Maintenance: • starter cover removed and air ways cleared • cord and coil spring tension released • cord inspected for wear • cord and coil spring re-tensioned • re-coil checked to ensure spring tension is correctly applied • pull toggle checked for security Greasing/lubrication: • may help prevent excessive wear of components Maintenance: • greasing of component parts as appropriate

		Fuel filter: • prevent debris entering engine components, maintenance may include cleaning as appropriate or replacement Maintenance: • fuel cap removed • filter located and removed where applicable from tank using appropriate tool • replacement as appropriate Oil filter: • prevent debris entering guide bar, maintenance may include cleaning as appropriate or replacement Maintenance: • oil cap removed • filter located and removed where applicable from tank using appropriate tool • condition of filter determined • cleaning procedures using non-flammable detergents followed by rinsing and drying or replacement as appropriate
13	Explain the function and maintenance requirements of the guidebar Maintain the guidebar in accordance with operator's handbook using appropriate tools	Guidebar: • holds and carries the chain to enable the cutting of timber Maintenance: • identification of uneven and damaged rails and maintain as appropriate • checking the straightness of bar • checking the bar groove depth • identification of any overheating, cracking and burring • removal of burrs • clearing the bar groove and oil holes • inspecting the sprocket nose for security and condition • greasing the bar nose sprocket if applicable • turning the bar following maintenance to reduce wear
14	Describe the problems encountered when chain and guidebar are worn, damaged or poorly maintained	Problems that may be encountered when a chain and guidebar are worn, damaged or poorly maintained may include: • chainsaw does not cut in a straight line • over-heating of the guidebar • poor lubrication of the chain • increased chain, bar and sprocket wear • other

15	State the information required to replace the chainsaw chain	The information required to replace the chainsaw chain may include: • pitch • gauge • length of guidebar • number of drive links • cutter type
16	Identify different cutter types and their application	Cutter types may include: • chisel chain • semi-chisel chain • other • application may depend on experience of the operator, timber type and personal preference
17	Explain how to select the correct filing information for the chain and why this is necessary	Select the correct file size and identify the required sharpening angles through use of chain charts, manufactures information, chain box etc Reasons for maintaining correct filing angles and cutter lengths may include: • ensures chain is sharpened as per manufacturers recommendations • enhances cutting performance • decreased vibration • accurate cutting • decreased risk of kick back • other The correct depth gauge setting: • achieves optimum cutting speed as per manufacturers recommendations • reduces the risk of kick back • reduces chain vibration • other
18	Explain the function and maintenance requirements of the chain Maintain the chain in accordance with operator's handbook using appropriate tools	Function of the chain: • carries the cutting components to enable the cutting of timber Maintenance of the chain: • checking cutters for damage and selecting the first cutter to sharpen • having the chain secured in a chain vice or on bar in a bench vice or timber vice • selecting and using a file of the correct size with a handle fitted to sharpen all of the cutters • maintenance of top and side plate angles throughout sharpening of the whole chain • ensuring a consistent cutter length is maintained • removing burrs when applicable • maintaining the height and profile of depth gauges

19	Reassemble chainsaw and cutting system to functional and operational standard	Upon completion of maintenance activities, the chainsaw including the bar and chain is reassembled in line with the operator's handbook
20	State steps to be taken when a chainsaw is not repairable, faulty or non-operational	Steps to take when a chainsaw is not repairable, faulty or non-operational may include: • labelling of the chainsaw and removing from service • operator maintenance • arranging for repair of the chainsaw • other
21	Clean and tidy working area	Maintenance area is left in a clean and tidy state with tools and equipment appropriately cleared away
22	Describe the correct methods for disposing of waste	Disposal of waste from maintenance activities may include: • use of designated waste/recycle bins • waste oils placed in approved containers for disposal • other
23	Dispose of waste safely in line with legislation	All waste produced from maintenance activities is disposed of in line with legislation, good practice and/or site requirements
24	Select and wear appropriate compliant personal protective equipment (PPE)	Appropriate and compliant PPE for chainsaw operations will include: • chainsaw safety leg protection • chainsaw safety footwear • safety helmet • eye and ear protection • gloves appropriate for the task • non-snag outer clothing • each person must carry a personal first aid kit • all PPE should conform to CE/EN standards
25	Identify the hazards, risks and controls associated with the site, task and machine	Identify hazards, risks and controls relevant to the site task and machine
26	State the emergency procedures relevant to the site	Emergency procedures relevant to the work site
27	State the appropriate safe working distances from other operators during cross-cutting	Safe working distance: • five metres or twice the length of the longest product
28	State routine bio-security controls	Bio-security controls may include: • cross contamination • disinfection/cleaning of equipment • cleaning/disposal of PPE • other

29	State environmental considerations specific to cross-cutting	Environmental considerations me include: • fuelling site • type of fuel/oil • use of battery powered saws • other
30	Carry out pre-start checks and setting of the machine for use	Pre-start checks and setting of the machine to include: • chain tension and condition checked for safe and effective use • safety features checked for condition and function • external nuts and bolts checked for security • chainsaw contains sufficient fuel and chain oil for operations • battery saw contains sufficient oil and charge
31	Demonstrate safe starting of the chainsaw	Chainsaw is checked started and function tested ready for use in accordance with manufactures information
32	Describe tension and compression in timber	Tension is found: • on the outside edge of strained timber and when cut, the kerf opens Compression is found: • on the inside edge of strained timber and when cut, the kerf closes
33	Describe the procedure for removing trapped saw	Procedure for removing a trapped saw may include: • first switch off engine and/or apply chain brake • lever the timber to open the cut • drive a wedge into the closed kerf • withdraw the saw • use another saw to free the trapped saw cutting the timber at least 300mm (12”) from the trapped saw
34	State recognised methods required to cross-cut timber	Methods of cross-cutting timber: Timber under no tension or compression: • Single cut through to sever timber • Partially cut through timber turn timber and sever Timber under tension and compression: • release compression in timber then cut through tension • bore cuts to initiate either tension or compression cuts Timber under extreme tension/compression: • multiple tension cuts • multiple compression cuts Timber above guidebar length: • use a larger saw/guide bar • use of reduction cut • cut from both sides

35	Cross-cut timber to length using a chainsaw in accordance with the job specification	Crosscutting of timber to length should include: • ensuring appropriate safe working distances from both fuel and other operators is maintained • correct use of PPE • timber is in a safe and appropriate position • safe starting procedure adopted Safe stance adopted including: • legs and feet are clear of the chain • left thumb around the front handle • chainsaw is stable/secure/supported during crosscutting • minimal risk of muscular/skeletal injury • bar aligned to maintain accuracy • head out of alignment with the bar and chain • use of throttle to cut safely and efficiently • cutting techniques employed to complete severance of timber • appropriate boring technique used if applicable • sequence of cuts undertaken to prevent saw becoming trapped • appropriate aids used for lifting, rolling or levering if applicable • accuracy of measurement within site specification and reasonable tolerances • tension and compression cuts should meet • chain brake used appropriately • saw switched off and left in safe position, bar cover replaced if appropriate
36	Use appropriate boring cuts to initiate either tension or compression cuts	Candidate to use appropriate boring cuts to sever timber
37	Describe how to apply ergonomic working methods	Ergonomic working methods may be applied by: • providing work areas at a comfortable height to avoid stooping • operators working in a pattern to prevent unnecessary repetitive movements • attempting to replace manual labour with machinery use where possible • other

38	Describe how to safely move timber	Moving timber safely may include the following techniques: • use of safe lifting techniques • moving timber within the operators personal lifting capacity • moving lightest to the heaviest • dragging • rolling • aid tools • machine • other
39	State considerations for stacking of timber	Considerations for stacking timber may include: • extraction method • species • length/diameter • product specific
40	State precautions to take to avoid uncontrolled timber movement	Uncontrolled timber movement may be avoided by: • ensuring manual stacking does not exceed one metre in height • using site features such as tree stumps to brace timber behind • avoiding stacking of timber on steep slopes or unsecured ground • appropriate signage • other
41	Stack produce for subsequent operations using appropriate aids and tools	Stacking of timber should take into account: • use of appropriate aids to handle / move products • correct stance during lifting • avoiding excessive lifting by levering, sliding, rolling • quality of stacking must be to an agreed job specification • tidy stacking of timber • position of stack appropriate to method of extraction • manually constructed stacks are limited to one metre high • other
42	Check timber is in an appropriate and safe position	Timber should be left in a safe, stable condition and appropriate position
43	Dispose of waste safely in line with legislation	All waste produced is disposed of in line with legislation, good practice and site requirements
44	Used appropriate tools, equipment and personal protective equipment (PPE)	All tools, equipment and personal protective equipment is used in line with industry good practice

45	Carried out work to minimise environmental damage	It is ensured that any possible environmental damage is minimised at all times
46	Worked in a way which maintains health and safety and is consistent with relevant legislation and industry good practice	All activities must be completed in a way which protects the operator and those around them

Appendix 1 Practical Table

201 - Chainsaw Maintenance and Cross-cutting

All criteria must be achieved.

Activity number and description	Achieved
Chainsaw maintenance	
1. Explain the risk assessment process	
2. Identify the hazards, risks and controls associated with the site, task and machine	
3. Outline the emergency planning and procedures relevant to the working area	
4. Outline responsibilities as an operator under the Health and safety at work act and Provision and use of work equipment regulations (PUWER)	
5. State providers of industry good practice	
6. Explain why it is important to maintain chainsaws to manufacturers recommendations	
7. Identify and explain the function of all the key safety features	
8. Select appropriate maintenance tools for the power unit and cutting systems in accordance with operator's handbook	
9. State hazards associated with battery powered equipment	
10. Explain battery power unit maintenance and checks	
11. State the benefits associated with the use of battery powered machines	
12. Explain the function and maintenance requirements of individual components Maintain power unit in accordance with operator's handbook using appropriate tools	
13. Explain the function and maintenance requirements of the guidebar Maintain the guidebar in accordance with operator's handbook using appropriate tools	
14. Describe the problems encountered when chain and guide bar are worn, damaged or poorly maintained	
15. State the information required to replace the chainsaw chain	
16. Identify different cutter types and their application	
17. Explain how to select the correct filing information for the chain and why this is necessary	
18. Explain the function and maintenance requirements of the chain Maintain the chain in accordance with operator's handbook using appropriate tools	

19. Reassemble chainsaw and cutting system to functional and operational standard	
20. State steps to be taken when a chainsaw is not repairable, faulty or non-operational	
21. Clean and tidy working area	
22. Describe the correct methods for disposing of waste	
23. Dispose of waste safely in line with legislation	
Cross-cutting	
24. Select and wear appropriate compliant personal protective equipment	
25. Identify the hazards, risks and controls associated with the site, task and machine	
26. State the emergency procedures relevant to the site	
27. State the appropriate safe working distances from other operators during cross-cutting	
28. State routine bio-security controls	
29. State environmental considerations specific to cross-cutting	
30. Carry out pre-start checks and setting of the machine for use	
31. Demonstrate safe starting of the chainsaw	
32. Describe tension and compression in timber	
33. Describe the procedure for removing trapped saw	
34. State recognised methods required to cross-cut timber	
35. Cross-cut timber to length using a chainsaw in accordance with the job specification	
36. Use appropriate boring cuts to initiate either tension or compression cuts	
37. Describe how to apply ergonomic working methods	
38. Describe how to safely move timber	
39. State considerations for stacking of timber	
40. State precautions to take to avoid uncontrolled timber movement	
41. Stack produce for subsequent operations using appropriate aids and tools	
42. Check timber is in an appropriate and safe position	
43. Dispose of waste safely in line with legislation	
44. Used appropriate tools, equipment and personal protective equipment (PPE)	
45. Carried out work to minimise environmental damage	
46. Worked in a way which maintains health and safety and is consistent with relevant legislation and industry good practice	

Appendix 2 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. To download the documents and to find other useful documents, go to the *Centre Document Library* on *www.cityandguilds.com* or click on the links below:

Quality Assurance Standards: Centre Handbook
This document is for all approved centres and provides guidance to support their delivery of our qualifications. It includes information on

- Centre quality assurance criteria and monitoring activities
- Administration and assessment systems
- Centre-facing support teams at City & Guilds / ILM
- Centre quality assurance roles and responsibilities.

The Centre Handbook should be used to ensure compliance with the terms and conditions of the Centre Contract.

Quality Assurance Standards: Centre Assessment
This document sets out the minimum common quality assurance requirements for our regulated and non-regulated qualifications that feature centre assessed components. Specific guidance will also be included in relevant qualification handbooks and/or assessment documentation.

It incorporates our expectations for centre internal quality assurance and the external quality assurance methods we use to ensure that assessment standards are met and upheld. It also details the range of sanctions that may be put in place when centres do not comply with our requirements, or actions that will be taken to align centre marking/assessment to required standards. Additionally, it provides detailed guidance on the secure and valid administration of centre-assessments.

Access arrangements - When and how applications need to be made to City & Guilds provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The *Centre Document Library* also contains useful information on such things as:

- Conducting examinations
- Registering learners
- Appeals and malpractice

Useful contacts
Please visit the Contact Us section of the City & Guilds website, *Contact us*

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. We offer over 500 qualifications across 28 industries through 8500 centres worldwide and award around two million certificates every year. 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 is a leader in global skills development. Our purpose is to help people, organisations and economies develop their skills for growth. We work with education providers, employers and governments in over 100 countries across the world to help people, businesses and economies grow by shaping skills systems and supporting skills development.

The Group is made up of City & Guilds, ILM, Kineo, The Oxford Group, Gen2, and Intertrain. Together we set the standard for professional and technical education and corporate learning and development around the world.

Copyright

Published by City & Guilds, a registered charity established to promote education and training

City & Guilds of London Institute
Giltspur House
5-6 Giltspur Street
London
EC1A 9DE

cityandguildsgroup.com