

City & Guilds NPTC Level 2 Award in Forest Machine Operations – Felling QAN (600/9104/6)

Version 1.0 (March 2024)

Assessment Pack – Centre and Candidate Version

Version and date	Change detail	Section
1.0 March 2024	First version	All

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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 the following units and learning outcomes:

210 Prepare amd operate machinery to fell trees covering the following learning outcomes:

- 1. Be able to work safely
- 2. Be able to select and prepare machinery
- 3. Be able to drive and manoeuvre machinery
- 4. Be able to fell trees
- 5. Know how to prepare, drive and manoeuvre machinery
- 6. Know how to fell trees
- 7. Know relevant health and safety legislation and industry good practice

General guidance on the requirements for assessment can be found in the Assessor Guidance 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 1.5 - 3 hours.

Site/workshop requirements:

Trees suitable for felling with the machine the candidate is being assessed on and within capabilities of the felling head, minimum of 10 trees (5 single cut and 5 multiple cut).

Equipment/Machinery:

Base unit which the candidate already holds the COC for and felling head all fit for purpose and suitably maintained. Any tools which may be needed to carry out any maintenance which may be required. If relevant an in date LOLER certificate.

Consumables:

Fuels, oils and grease as may be required, if relevant to the felling head being used suitable replacement chains. PPE required as per site and machine. Operators manual and/or training materials should be available if needed.

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

210 Prepare and operate machinery to fell trees

Activity check l	r number and description from ist	Assessment criteria
1.1	Identify the hazards and risks associated with the working area and the proposed work	Identify hazards (anything with the potential to cause harm) and risks (who might be harmed), relevant to: The work area/work to be done Hazards • power lines • terrain • access routes • chain shot • risk zones • struck by timber • other Risks • others on site • operator • public • other The machine Hazards • struck by machine • access and egress • moving parts • hot surfaces • working at heights • high pressure fluids • other
1.2	Use appropriate tools, equipment and Personal Protective Equipment	 To include: All tools, equipment and Personal Protective Equipment are used in line

		with industry good practice e.g. AFAG/HSE.
		 During all on site operations PPE in accordance with industry good practice must be worn
		Personal Protective Equipment identified could include:
		 safety helmet (if required)
		 hearing protection (where needed)
		 suitable protective gloves
		 protective boots
		 non snag outer clothing
		 high visibility clothing where risk assessment identifies it
		 hand cleaning materials
		first aid kit
		• other
1.3	Carry out work specification in accordance with relevant legislation, industry good practice and maintains health and safety	All activities must be completed in a way which protects the operator and those around them
1.4	Carry out work to minimise environmental damage	 It is ensured that any possible environmental damage is minimised at all times during on site operations
	Carry out pre and post start checks to test all operating functions of the equipment	Pre and post start checks on base machine according to the operators handbook and to
	equipment	include:
	oquipmont	include:machine on level ground
	oquipmont	
	oquipmont	 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed
	oquipmont	 machine on level ground ensure machine services in neutral and lowered where applicable
	oquipmont	 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air
2.1	oquipmont	 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter
2.1	oquipmont	 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror
2.1	oquipmont	 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror adjustment operator seat restraint is functional
2.1		 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror adjustment operator seat restraint is functional (where applicable)
2.1		 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror adjustment operator seat restraint is functional (where applicable) check operator protection systems check relevant access and egress
2.1		 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror adjustment operator seat restraint is functional (where applicable) check operator protection systems check relevant access and egress points check wheel nuts check pin bush wear and security
2.1		 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror adjustment operator seat restraint is functional (where applicable) check operator protection systems check relevant access and egress points check pin bush wear and security check for cracks/fatigue
2.1		 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror adjustment operator seat restraint is functional (where applicable) check operator protection systems check relevant access and egress points check pin bush wear and security check for cracks/fatigue check for hydraulic leaks
2.1		 machine on level ground ensure machine services in neutral and lowered where applicable engine stopped and key removed check engine oil, transmission/hydraulic oil, coolant and fuel level, engine air filter importance of cleanliness seat, steering mechanism and mirror adjustment operator seat restraint is functional (where applicable) check operator protection systems check relevant access and egress points check pin bush wear and security check for cracks/fatigue

LOLER certificate (if required)
radiators (coolant and hydraulic)
fuel filters and/or water trap
grease where and when appropriate
Check security of loader to base:
bolts cracks leaks
Check security of loader attachment:
bolts cracks
Check attachment:
security
condition
hydraulic leaks
 pin and bushes
pipe work
guarding
Maintenance of forwarder:
Chassis/ Frame
cracks
pin security
bushes
cylinders
attachment
 loose or broken bolts
cables and connections
guarding
De-limbing mechanism
security
sharpness
cracks
profile
pins and bushes
Iubricant
Saw chain (if fitted)
sharpness
tension (if applicable)
wear and tear
broken tie straps
Iubricant
guarding
Guide bar (if fitted)
 straight
overheating
 sprocket
nose
Iubricant
Sheers (if fitted)

		 sharp cracks straight alignment lubricant guarding Circular saw (if fitted) sharp straight cracks missing teeth set lubricant guarding Hydraulic hoses leaks cracks cracks cuts abrasions security guarding Environmental considerations disposal storage of oils on site spill kit mats used
2.2	Plan work and the work site to maintain safe working areas to operate the timber processor	 Planning work may include: with minimal damage to the worksite standing trees tracks roads drains environment in accordance with the site and job specification other Utilise additional safeguards such as: barriers banksman signs other workers risk zone e.g. adjacent roads and tracks
3.1	Drive the machine on site in a safe and effective way	 Candidate to drive or manoeuvre machine safe access start in accordance with manufacturers recommendations

	Г	
	Manoeuvre the machine on site and in a safe and effective way	 appropriate gear selection smoothness of take off drive in a straight line left and right turn reverse appropriate speed for conditions appropriate use of brakes parking brake applied and effective stop in accordance with manufacturers recommendations safe egress Candidate to drive or manoeuvre machine safe access
3.2		 start in accordance with manufacturers recommendations appropriate gear selection smoothness of take off drive in a straight line left and right turn reverse appropriate speed for conditions appropriate use of brakes parking brake applied and effective stop in accordance with manufacturers recommendations safe egress
4.1	Identify trees in accordance with the job specification	Tree Identification may include: • marking • paint • GPS and digital mapping • site plan • tape • other
4.2	Fell trees in accordance with the job specification	 To include: Single cuts use machinery in accordance with relevant legislation and manufacturer's instructions identify and fell trees in accordance with job specification correct felling sequence i.e. tree selection correct positioning of base machine correct positioning of felling head stem gripped correctly tree felled in correct direction

		avoid damage to remaining crop
		low stump height stump treatment (if appliaghla)
		stump treatment (if applicable)
		 avoidance of splits, spikes and shattered butts
		environmental and conservation
		requirements complied with industry recognised guidelines are followed
		Multiple cuts:
		 use machinery in accordance with relevant legislation and manufacturer's instructions
		 identify and fell trees in accordance with job specification
		correct felling sequence i.e. tree selection
		correct positioning of base machine
		 correct positioning of felling head
		 stem gripped correctly
		 first cut placed in the intended felling direction
		 second cut level or slightly above first cut
		 avoid damage to remaining crop
		low stump height
		 stump treatment (if applicable)
		 avoidance of splits, spikes and shattered butts
		 environmental and conservation requirements complied with
		 industry recognised guidelines are followed
		Thinning:
		fell to prevent damage to the stems
		 machine positioned to avoid root, stem and branch damage
		 position of product relative to standing trees
		thinning regime identified
	Use machinery in accordance with	Use machinery in accordance:
4.3	relevant legislation and manufacturer's instructions	 relevant legislation and manufacturer's instructions
		other
	State the safety requirements,	To include:
	routine and functional checks	Level ground
5.1	required for machine and operator protection	all fluid levels can be accurately
	2101001011	checked
		other

Machine Services
security
 unauthorised third party operation
other
Cleanliness
 personal contamination
system contamination
• other
Adjustment
ergonomics
visibility
• other
Restraint systems
 personal safety
 HSE requirement other
Operator protection systems
roll over protective structure (ROPS)
falling object protective structure FOPS)
operator protection structure (OPS)
• other
Access and Egress
operator safety
PUWER
• other
Wheel nuts
visually
torque wrench
operators handbook
Tension criteria
according to manufacturers
recommendations
• other
Safe procedure for detection of leaks:
hands not used for detection of leak
use a piece of card or paper
• other
appropriate PPE identified
use of spill kit
 hydraulic system lowered and pressure
relieved
importance cleanliness
 vacuum pump (if fitted)
 shut off valve (if fitted)
Tools
• spanners x 2
Criteria for pipe replacement

		pressure rating
		length
		end fittings
		bore
		 referred to Operators manual
		 new hose fitted ensuring inside of hose and joints are clean
		 correctly routed not twisted
		 switch off vacuum pump (if fitted)
		open valve (if fitted)
		 hydraulic oil topped up and checked as required
		start machine
		operate function
		check for leaks
		clean up spill kit
		re-check oil level
		Environmental considerations
		 waste bagged and labelled
		licensed disposal
		recycle
		other
	Describe safe driving techniques that should be used on site	other Importance of loader position and machine stability
		Importance of loader position and machine
		Importance of loader position and machine stability
		Importance of loader position and machine stability Loader position
		Importance of loader position and machine stability Loader position • maintain the centre of gravity
		Importance of loader position and machine stability Loader position maintain the centre of gravity over reaching
		Importance of loader position and machine stability Loader position • maintain the centre of gravity • over reaching • over loading • slope/steep ground • loader parking position
		Importance of loader position and machine stability Loader position • maintain the centre of gravity • over reaching • over loading • slope/steep ground • loader parking position Machine stability
		Importance of loader position and machine stability Loader position maintain the centre of gravity over reaching over loading slope/steep ground loader parking position Machine stability use of legs (if fitted)
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5.2		Importance of loader position and machine stability Loader position maintain the centre of gravity over reaching over loading slope/steep ground loader parking position Machine stability use of legs (if fitted) oscillation lock ballast of tyres/traction aids ground condition Safe driving techniques may be applied by correct gear selection and engine speed route selection and planning
5.2		Importance of loader position and machine stability Loader position maintain the centre of gravity over reaching over loading slope/steep ground loader parking position Machine stability use of legs (if fitted) oscillation lock ballast of tyres/traction aids ground condition Safe driving techniques may be applied by correct gear selection and engine speed route selection and planning patching and brash matt repair
5.2		Importance of loader position and machine stability Loader position maintain the centre of gravity over reaching over loading slope/steep ground loader parking position Machine stability use of legs (if fitted) oscillation lock ballast of tyres/traction aids ground condition Safe driving techniques may be applied by correct gear selection and engine speed route selection and planning patching and brash matt repair appropriate use of difflock
5.2		Importance of loader position and machine stability Loader position • maintain the centre of gravity • over reaching • over loading • slope/steep ground • loader parking position Machine stability • use of legs (if fitted) • oscillation lock • ballast of tyres/traction aids • ground condition Safe driving techniques may be applied by • correct gear selection and engine speed • route selection and planning • patching and brash matt repair • appropriate use of difflock • appropriate use of traction aids
5.2		Importance of loader position and machine stability Loader position maintain the centre of gravity over reaching over loading slope/steep ground loader parking position Machine stability use of legs (if fitted) oscillation lock ballast of tyres/traction aids ground condition Safe driving techniques may be applied by correct gear selection and engine speed route selection and planning patching and brash matt repair appropriate use of difflock appropriate use of traction aids stability
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5.3	Explain the implications of terrain, ground conditions, season, weather and tree condition on planning access routes and driving the machine	Route planning may be achieved by assessing: Terrain • roughness, slope • other Ground conditions • load to match ground conditions (ground bearing capacity) • other Seasonal
		 winter, summer other Tree species transport of brash from worked racks tree species relevant to brash availability other
6.1	Describe how to recognise trees to be felled to meet the job specification	 Tree Identification may include: marking paint GPS and digital mapping site plan tape other
6.2	Describe how to assess trees to determine felling method	 Tree assessment may include: operators manual maximum felling diameter machine handling limit stability of the machine species of the tree tree size
6.3	Explain how to carry out windblow clearance and other difficult and dangerous operations	 To include: Windblown correct positioning of machine grips tree correctly (stem) be alert to the possibility of stem and other material movement make every endeavour to replace the severed root plate stump treatment as directed by management presentation of stems for processing industry recognised guidelines are followed other Forked or mis-shaped tree machine capability

		Alternative methods:
		motor manual
		assisted felling
		Sever a hung up tree:
		 use machinery in accordance with relevant legislation and manufacturer's instructions
		 identify and fell trees in accordance with job specification
		 correct felling sequence i.e. tree selection
		 correct positioning of base machine
		 correct positioning of felling head
		 stem gripped correctly
		 be alert to stem and other material movement
		tree felled in direction of lean
		 avoid damage to remaining crop
		 rootplate re-instated
		 stump treatment (if applicable)
		 avoidance of splits, spikes and shattered butts
		 environmental and conservation requirements complied with
		 industry recognised guidelines are followed
		other
	Outline current health and safety legislation, codes of practice and	Outline key points from the legislation listed below:
	any additional requirements	Health and Safety at Work Act (HSWA) (1974) –
		 general duties for employers and employees
		maintain safe places of work
		other
		Provision and Use of Work Equipment Regulations 1998 (PUWER 98) –
7.1		record keeping
		 operators adequately trained
		equipment fit for purpose
		• other
		Lifting Operations and Lifting Equipment Regulations (1998) (LOLER)
		 main requirements of the LOLER required by the machine
		 risk zones
		 safe working load
		 inspection by a competent person

		operating controls labelled		
		• other		
		Reporting of Injuries, Diseases and		
		Dangerous Occurrences Regulations 1995 (RIDDOR)		
		 reporting of accidents 		
		reporting of dangerous occurrences		
		 other Working at Heights 		
		 adequate precautions taken for safe working procedures 		
		 any height constitutes working at heights 		
		other		
		Control of Substances Hazardous to Health (COSHH) Regulations (2002)		
		correct PPE to be identified		
		correct storage and application		
		disposal		
		other		
		Industry Good Practice		
		 Arboriculture Forestry Advisory Group (AFAG) information 		
		Health and safety in forestry		
		Forest and water guidelines		
		Operators manual		
		Lone working		
		effective communication system		
		fail to safe system		
		reporting in times		
		Line contact possible procedures:		
		where possible, drive away to safe area		
		 if safe, stay in machine and contact power company/supervisor 		
		 jump from machine, bunny hop as far as possible 		
		Power lines:		
		 designated crossing point (goal posts) 		
		 liaison with power companies 		
		 site maps 		
		• AFAG		
		electricity at work		
		• other		
	Explain why it is important to	Importance of communication could include:		
	maintain good communication and	 health and safety 		
7.2	team work within the working	 site planning/co-ordination 		
	environment	 other 		

7.3	Describe the types of records that may be required for management and legislative requirements	Records: logbook service logbook time sheet maintenance schedule other
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Appendix 1 Practical table

210 Prepare and operate machinery to fell trees

All criteria must be achieved.

Activity number and description	Achieved
1.1 Identify the hazards and risks associated with the working area and the proposed work	
1.2 Use appropriate tools, equipment and Personal Protective Equipment	
1.3 Carry out work specification in accordance with relevant legislation, industry good practice and maintains health and safety	
1.4 Carry out work to minimise environmental damage	
2.1 Carry out pre and post start checks to test all operating functions of the equipment	
2.2 Plan work and the work site to maintain safe working areas to operate the timber processor	
3.1 Drive the machine on site in a safe and effective way	
3.2 Manoeuvre the machine on site and in a safe and effective way	
4.1 Identify trees in accordance with the job specification	
4.2 Fell trees in accordance with the job specification	
4.3 Use machinery in accordance with relevant legislation and manufacturer's instructions	
5.1 State the safety requirements, routine and functional checks required for machine and operator protection	
5.2 Describe safe driving techniques that should be used on site	
5.3 Explain the implications of terrain, ground conditions, season, weather and tree condition on planning access routes and driving the machine	
6.1 Describe how to recognise trees to be felled to meet the job specification	
6.2 Describe how to assess trees to determine felling method	
6.3 Explain how to carry out windblow clearance and other difficult and dangerous operations	
7.1 Outline current health and safety legislation, codes of practice and any additional requirements	
7.2 Explain why it is important to maintain good communication and team work within the working environment	
AC 7.3 Describe the types of records that may be required for management and legislative requirements	

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

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications. Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance. All external quality assurance processes reflect the minimum requirements for verified and moderated assessments, as detailed in the Centre Assessment Standards Scrutiny (CASS), section H2 of Ofqual's General Conditions. For more information on both CASS and City & Guilds Quality Assurance processes visit: the <u>What is CASS?</u> and <u>Quality Assurance Standards</u> documents on the City & Guilds website.

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

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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.

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