Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction)

Qualification Specification

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Introduction

The ProQual Level 3 NVQ Diploma Construction Plant or Machinery Maintenance (Construction) qualification provides a nationally recognised qualification for those working in the construction and the built environment sector working in plant or machinery maintenance. It is designed to assess occupational competence in the workplace where candidates are required to demonstrate skills and knowledge to a level required in the construction industry.

The awarding body for this qualification is ProQual Awarding Body (www.proqualab.com) and the regulatory body is the Office of Qualifications and Examinations Regulation (Ofqual); It is also endorsed by the sector body for construction - CITB.

The qualification has been accredited onto the Regulated Qualifications Framework (RQF) and is published on Ofqual's Register of Qualifications.

Qualification Profile
Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction)

Qualification title	**ProQual Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction)**
Ofqual qualification number	603/3897/0
Level	3
Total Qualification Time	1670 hours (555 GLH)
Assessment	Pass or fail Internally assessed and verified by centre staff External quality assurance by ProQual verifiers
Qualification start date	10/12/2018
Qualification end date	

Entry Requirements

There are no formal entry requirements for this qualification.

Centres should carry out an **initial assessment** of candidate skills and knowledge to identify any gaps and help plan the assessment.

Qualification Structure

To achieve the qualification candidates must complete SEVEN Mandatory units plus THREE Optional units. CITB references are provided in this document for information only.

Mandatory unit details and unit endorsements – page 4

Optional unit details and unit endorsements – pages 5, 6 and 7

Mandatory Units – complete all units			***CITB reference provided for information only***
Unit Ref.	**Title**	**Level**	*CITB Internal Unit Ref.*
H/503/2772	Confirming work activities and resources for an occupational work area in the workplace	3	*209v2*
M/503/2915	Developing and maintaining good occupational working relationships in the workplace	5	*210v2*
R/503/2924	Confirming the occupational method of work in the workplace	3	*211V2*
F/616/4457	Operating plant or machinery for non-operational activities in the workplace *Unit Endorsements:* ***Two** of the following endorsements required:* *Hand-operated power tools* *Static machinery* *Pedestrian controlled equipment* *Tracked plant* *Wheeled plant* *Rollers*	2	*659*
L/616/4462	Diagnosing faults in plant or machinery systems or components in the workplace *Unit Endorsements:* ***Four** of the following endorsements required:* *Power unit* *Transmission* *Steering* *Hydraulic* *Pump* *Brake* *Pneumatic* *Electrical* *Electronic* *Operating ancillaries and attachments*	3	*664*
A617/3724	Determining and completing service to maintain plant or machinery in the workplace	3	*670*
J/617/3726	Determining and advising on the viability of repair or replacement for returning plant or machinery to service in the workplace	3	*671*

Optional Units – complete THREE units			***CITB reference for information only***
Unit Ref.	**Title**	**Level**	*CITB Internal Unit Ref.*
J/616/4461	Inspecting plant or machinery for operational serviceability in the workplace	2	*663v2*
M/616/4468	Handing over plant or machinery to the control of others in the workplace	3	*672*
Y/615/1987	Providing technical information, advice and guidance to users of plant or machinery in the workplace *Unit Endorsements:* ***Two*** *of the following endorsements required:* *Breakdown* *Handover* *Request* *Contract/guarantee/warranty/hire agreement* *Recall* *Modification/alteration*	3	*673*
R/616/4463	Installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting in the workplace *Unit Endorsements:* ***Heating****:* ***Two*** *of the following endorsements required:* *Components freed* *Heat treatment* *Corrosion reduction/removal* *Adjustment* *Expansion and contraction fit* ***Welding****:* ***Two*** *of the following endorsements required:* *Oxygen and fuel gas* *Manual metal arc* *MIG or MAG* *Tungsten inert gas* ***Soldering****:* ***One*** *of the following endorsements required:* *Oxygen and fuel gas* *Iron and flux* *Electric soldering iron* ***Joints:*** ***Two*** *of the following endorsements required:* *Butt* *Lap* *Fillet* *Corner* ***Positions:*** ***Two*** *of the following endorsements required:* *Flat* *Vertical/horizontal* *Vertical* *Overhead* ***Thermal cutting****:* ***One*** *of the following endorsements required:* *Oxy fuel gas* *Plasma*	2	*665*

Unit Ref.	Title	Level	*CITB Internal Unit Ref.*
Y/616/4464	Producing one-off components to restore or maintain the operational functions or plant or machinery in the workplace	2	*666*
D/616/4465	Installing plant or machinery for operational activities in the workplace *Unit Endorsements:* ***One** of the following endorsements required:* *Mobile or ringer crane* *Tower crane* *Hoist* *Rig (piling/drilling/demolition)* *Excavation/vacuum plant machinery* *Batching/mixing/blending plant* *Crushing/screening plant* *Power generation equipment* *Pump* *Climate management machines* *Concrete placing boom*	3	*667*
H/616/4466	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace *Unit Endorsements:* *At least **four** of the following endorsements required:* *Electric systems* *Cooling systems* *Lubrication systems* *Emission control* *Hydraulic systems* *Hydrostatic drive* *Transmission systems* *Pneumatic systems* *Braking systems* *Vibration management* *Steering/suspension systems* *Generator output control* *Electronic management* *Powered access equipment* *Material handling equipment* *Water pumps* *Craneage* *Lifting equipment* *Load testing (cranes, hoists, MEWPs, MHE)*	3	*668v3*

Unit Ref.	Title	Level	*CITB Internal Unit Ref.*
K/616/4467	Configuring plant or machinery for specific operational activities in the workplace *<u>Unit Endorsements</u>:* ***Two** of the following endorsements required:* *Attachments* *Ancillaries* *Fire prevention* *Structural support* *Safety measures* *Contaminant reduction* *Carriage of ancillaries/additional equipment* *Rail and trackside* *Cutting equipment* *Additions (e.g. publicity boards, notices, lights)* *Machine control* *Productivity measurement*	2	*669*

Centre Requirements

Centres must be approved to offer this qualification. If your centre is not approved please complete and submit form **ProQual Additional Qualification Approval Application**.

Staff
Staff delivering this qualification must be appropriately qualified and/or occupationally competent.

Assessors/Internal Quality Assurance
Assessors for each unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy.

Assessors and internal quality assurance verifiers for competence-based units or qualifications will normally need to hold appropriate assessor or internal quality assurance qualifications.

Support for Candidates

Materials produced by centres to support candidates should:

- enable them to track their achievements as they progress through the learning outcomes and assessment criteria;
- provide information on where ProQual's policies and procedures can be viewed;
- provide a means of enabling Internal and External Quality Assurance staff to authenticate evidence

Links to National Standards / NOS mapping

National Occupational Standards (NOS) are owned by a Sector Skills Council or Standard Setting Body and they describe the skills, knowledge and understanding needed to undertake a particular task or job at different levels of competence.

The structure and units of this qualification are based on NOS for the construction sector developed by CITB.

Assessment

This qualification is competence-based, candidates must demonstrate the level of competence described in the units. Assessment is the process of measuring a candidate's skill, knowledge and understanding against the standards set in the qualification.

The qualifications must be assessed in a work environment and in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment, and it must be internally assessed by an appropriately experienced and qualified assessor.

Each candidate is required to produce a portfolio of evidence which demonstrates their achievement of all of the learning outcomes and assessment criteria for each unit.

Evidence can include:

- observation report by assessor
- assignments/projects/reports
- professional discussion
- witness testimony
- candidate product
- worksheets
- record of oral and written questioning
- Recognition of Prior Learning

Learning outcomes set out what a candidate is expected to know, understand or be able to do.

Assessment criteria specify the standard a candidate must meet to show the learning outcome has been achieved.

Learning outcomes and assessment criteria can be found from page 11.

Additional information for assessment and requirements for unit **endorsements** where relevant is included after all of the learning outcomes and assessment criteria for each unit.

Internal Quality Assurance

An internal quality assurance verifier confirms that assessment decisions made in centres are made by competent and qualified assessors, that they are the result of sound and fair assessment practice and that they are recorded accurately and appropriately.

Adjustments to Assessment

Adjustments to standard assessment arrangements are made on the individual needs of candidates. ProQual's Reasonable Adjustments Policy and Special Consideration Policy sets out the steps to follow when implementing reasonable adjustments and special considerations and the service that ProQual provides for some of these arrangements.

Centres should contact ProQual for further information or queries about the contents of the policy.

Results Enquiries and Appeals

All enquiries relating to assessment or other decisions should be dealt with by centres, with reference to ProQual's Enquiries and Appeals Procedures.

Certification

Candidates who achieve the requirements for this qualification will be awarded:

- A certificate listing all units achieved, and
- A certificate giving the full qualification title -

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Claiming certificates

Centres may claim certificates for candidates who have been registered with ProQual and who have successfully achieved the qualification. All certificates will be issued to the centre for successful candidates.

Unit certificates

If a candidate does not achieve all of the units required for a qualification, the centre may claim a unit certificate for the candidate which will list all of the units achieved.

Replacement certificates

If a replacement certificate is required a request must be made to ProQual in writing. Replacement certificates are labelled as such and are only provided when the claim has been authenticated. Refer to the Fee Schedule for details of charges for replacement certificates.

Title:	Confirming work activities and resources for an occupational work area in the workplace
Unit Number:	A/503/2772

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*	
1 Identify work activities, assess required resources and plan the sequence of work.	1.1	Identify work activities, assess required resources and plan the sequence of work.
	1.2	Identify work activities and formulate a plan for their own sequence of work.
	1.3	Explain the types of work relative to the occupational area and how to identify different work activities.
	1.4	Explain methods of assessing the resources needed from a range of available information.
	1.5	Explain the required information and the different methods used to prepare a work programme relative to the occupational area.
2 Obtain clarification and advice where the resources required are not available.	2.1	Seek advice and clarity from appropriate sources on resources available and the alternatives that can be used for the work when required resources are not available.
	2.2	Explain the different sources and methods that can be used to obtain clarification and advice when the required resources are not available.
3 Evaluate the work activities and the requirements of any significant external factors against the project requirements.	3.1	Assess progress of work against project requirements, taking into account external factors relating to: – other occupations and /or customers – resources – weather conditions – health and safety requirements.
	3.2	Explain different methods of evaluating work activities against the following project requirements: – contract conditions – contract programme – health and safety requirements of operatives.
	3.3	Evaluate the requirements of significant external factors that could affect the progress of work, in relation to: – other related programmes – special working conditions – weather conditions – other occupations/people – resources – health and safety requirements.

Title:	Confirming work activities and resources for an occupational work area in the workplace

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
4 Identify work activities which influence each other and make the best use of the resources available.	4.1 Determine work activities that have an influence on each other.
	4.2 Evaluate which work activities make the best use of available resources in relation to: – occupations and/or customers associated with the work – tools, plant and/or ancillary equipment – materials and components.
	4.3 Explain different methods and sources that can identify which work activities influence each other.
	4.4 Describe how to determine the sequence of work activities and how long each work activity will take.
	4.5 Describe what zero and low carbon requirements are.
	4.6 Explain how work activities and different ways of using resources can impact on zero and low carbon requirements, and make a positive contribution to the environment.
5 Identify changed circumstances that require alterations to the work programme and justify them to decision makers.	5.1 Evaluate project progress against the work programme to identify any changed circumstances.
	5.2 Inform line management and/or customers on the type and extent of any required changes to the work programme.
	5.3 Explain how to identify possible alterations to the work programme to meet changed circumstances relating to action lists, method statements, duration, schedules and/or occupation specific requirements.
	5.4 Explain how to assess contractual/work effects resulting from alterations to the work programme.
	5.5 Explain the methods used to justify to decision makers on the effects resulting from alterations to the work programme.

Title:	Confirming work activities and resources for an occupational work area in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Subject Sector Area	05.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	33

Title:	Developing and maintaining good occupational working relationships in the workplace
Unit Number:	M/503/2915

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
1 Develop, maintain and encourage working relationships to promote good will and trust.	1.1 Give appropriate advice and information to relevant people about the occupational work activities and/or associated occupations involved.
	1.2 Apply the principles of equality and diversity by considering the needs of individuals when working and communicating with others.
	1.3 Explain the methods and techniques used and personal attributes required to encourage and maintain working relationships that promote goodwill and trust with relevant people.
	1.4 Explain the principles of equality and diversity and how to apply them when working and communicating with others.
2 Inform relevant people about work activities in an appropriate level of detail, with the appropriate level of urgency.	2.1 Communicate on the following work activity information to relevant people following organisational procedures: – appropriate timescales – health and safety requirements – co-ordination of work procedures.
	2.2 Explain the different methods and techniques used to inform relevant people about work activities.
	2.3 Explain the effects of not informing relevant people with the expected level of urgency.
	2.4 Explain the different types of work activity related information and to what level of detail the following people would expect to receive: – colleagues – employers – customers – contractors – suppliers of products and services – other people affected by the work/project.

Title:	Developing and maintaining good occupational working relationships in the workplace

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
3 Offer advice and help to relevant people about work activities and encourage questions/requests for clarification and comments.	3.1 Give appropriate advice and information to relevant people about the different methods of carrying out occupational work activities to achieve the required outcome.
	3.2 Explain the techniques of encouraging questions and/or requests for clarification and comments.
	3.3 Explain the different ways of offering advice and help to different people about work activities, in relation to: – progress – results – achievements – occupational problems – occupational opportunities – health and safety requirements – co-ordinated work.
4 Clarify proposals with relevant people and discuss alternative suggestions.	4.1 Engage regular discussions with relevant people about the occupational work activity and/or other occupations involved.
	4.2 Explain the methods of clarifying alternative proposals with relevant people.
	4.3 Explain the methods of suggesting alternative proposals.
5 Resolve differences of opinion in ways that minimise offence and maintain goodwill, trust and respect.	5.1 Examine and agree the work activities that satisfy all people involved and will meet the required outcome of the proposed method of work.
	5.2 Explain the methods and techniques used to resolve differences of opinion in ways which minimise offence and maintain goodwill, trust and respect.

Title:	Developing and maintaining good occupational working relationships in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	05.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	27

Title:	Confirming the occupational method of work in the workplace
Unit Number:	R/503/2924

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
1 Assess available project data accurately to determine the occupational method of work.	1.1 Interpret and extract information from drawings, specifications, schedules, manufacturer's information, methods of work, risk assessments and programmes of work.
	1.2 Explain how to summarise the following project data: – required quantities – specifications – detailed drawings – health and safety requirements – timescales – scope of works.
	1.3 Explain the different methods of assessing available project data.
	1.4 Explain how to use project data to interpret the work method, In relation to: – standard work procedures – sequence of work – organisation of resources (people, equipment, materials) – work techniques – working conditions (health, safety and welfare) – risk assessment.
2 Obtain additional information from alternative sources in cases where the available project data is insufficient.	2.1 Collect and collate additional information from alternative sources to clarify the work to be carried out.
	2.3 Explain different methods and techniques of obtaining additional information from the following alternative sources when available project data is insufficient: – customers or representatives – suppliers – regulatory authorities – manufacturer's literature.

Title:	Confirming the occupational method of work in the workplace
Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
3 Identify work methods that will make best use of resources and meet project, statutory and contractual requirements.	3.1 Examine potential work methods to carry out the occupational work activity.
	3.2 Determine which work methods will make best use of relevant resources and meet health and safety requirements relating to technical and/or project criteria.
	3.3 Explain how to identify work methods that make best use of resources and meet project, statutory and contractual requirements against technical criteria, in relation to: – health and safety welfare (principles of protection) – fire protection – access and egress – equipment availability – availability of competent workforce – pollution risk – waste and disposal – zero and low carbon outcomes – weather conditions.
	3.4 Explain how to identify work methods that make best use of resources and meet project, statutory and contractual requirements against project criteria, in relation to: – conforming to statutory requirements – customer and user needs – contract requirements in terms of time, quantity and quality – environmental considerations.
	3.5 Explain how different methods of work can achieve zero/low carbon outcomes.
4 Confirm and communicate the selected work method to relevant personnel.	4.1 Confirm the selected occupational work method that meets project, statutory and contractual requirements.
	4.2 Communicate appropriately to relevant people on the selected occupational work method.
	4.3 Describe the different techniques and methods of confirming and communicating work methods to relevant people.
	4.4 Explain the principles of equality and diversity and how to apply them when working and communicating with others.

Title:	Confirming the occupational method of work in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	05.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	37

Title:	Operating plant or machinery for non-operational activities in the workplace	
Unit Number:	F/616/4457	
Learning outcomes The learner will be able to:		**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when operating plant or machinery for non-operational activities		1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, user manuals and manufacturers' information related to the plant or machinery operation and the activity to be completed.
		1.2 Comply with information and/or instructions derived from risk assessments and method statements.
		1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
		1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, user manuals, manufacturers' information and current regulations governing the operation of plant and machinery
2 Organise with others the sequence in which the work is to be carried out when operating plant or machinery for non-operational activities.		2.1 Organise the work in accordance with given information or instructions.
		2.2 Communicate with team members and other associated occupations about the plant or machinery operation and work to be carried out.
		2.3 Describe how to communicate ideas between team members and other associated occupations.
		2.4 Describe how to organise resources in conjunction with the progress of work.
3 Know how to comply with relevant, current legislation, special legal status documents, official guidance and organisational procedures when operating plant or machinery for non-operational activities.		3.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
		3.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
		3.3 Explain what the accident reporting procedures are and who is responsible for making reports.

Title:	Operating plant or machinery for non-operational activities in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
4 Maintain safe and healthy working practices when operating plant or machinery for non-operational activities.	4.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when operating plant or machinery for non-operational activities.
	4.2 Comply with information relating to specific risks to health when operating plant or machinery for non-operational activities.
	4.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to operating plant or machinery for non-operational activities and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	4.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	4.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
5 Request and select the required quantity and quality of resources to operate plant or machinery for non-operational activities.	5.1 Request and select resources associated with own work in relation to tools, ancillary equipment and/or accessories and consumables.
	5.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – hand tools, ancillary equipment and/or accessories.
	5.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	5.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.

Title:	Operating plant or machinery for non-operational activities in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Continued	5.5 Describe any potential hazards associated with the resources and methods of work.
	5.6 Describe how to calculate weight, bearing pressure, quantity, length and area associated with the method/procedure to operate plant or machinery for non-operational activities.
6 Minimise the risk of damage to the work and surrounding area when operating plant or machinery for non-operational activities.	6.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	6.2 Minimise damage and maintain a clean work space.
	6.3 Dispose of waste in accordance with current legislation.
	6.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	6.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
7 Complete the work within the allocated time when operating plant or machinery for non-operational activities.	7.1 Demonstrate completion of the work within the allocated time.
	7.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
8 Comply with the given contract information to operate plant or machinery for non-operational activities to the required specification.	8.1 Demonstrate the following work skills when operating plant or machinery for non-operational activities: – preparing, setting up, configuring, starting, manoeuvring, running, supporting, parking, stopping and securing.
	8.2 Prepare, configure and operate plant or machinery for non-operational activities, (inspection, repair, maintenance, testing or travel), to given working instructions for two of the following: – hand-operated power tools – static machinery – pedestrian controlled equipment – tracked plant – wheeled plant – rollers.

Title:	Operating plant or machinery for non-operational activities in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
8 Continued	8.3 Shut down and secure plant or machinery to given working instructions.
	8.4 Record and report findings using the appropriate method, in accordance with given working instructions.
	8.5 Safely use plant, machinery, hand tools, ancillary equipment and/or accessories.
	8.6 Safely store the plant, machinery, tools, equipment and/or accessories used when operating plant or machinery for non-operational activities.
	8.7 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – identify capabilities, characteristic and limitations of plant and machinery (ride on and remote control) including hand-operated power tools, static machinery, pedestrian controlled equipment, wheeled plant and tracked plant, rollers – consider the area available for the movements required (height restrictions, obstructions, overhead / underground obstructions, services, ventilation and point loading) – complete pre-use, pre-start and pre-movement checks – prepare the plant and machine for operation – manoeuvre and position plant and machine – manoeuvre plant and machinery on slopes and inclines, uneven terrain, rough terrain, un-compacted ground, areas with restricted clearances, in inclement and extreme weather and areas where there is other vehicle and pedestrian traffic – operate plant and machinery within operational limitations – support plant and machinery for the activity (inspection, repair, maintenance, testing or travel) – follow signals and instructions – shut down, park and secure plant and machine – immobilise plant and machinery – prepare plant and machinery for transportation – report findings and defects – use hand tools, ancillary equipment and accessories – work at height – use access equipment – complete and maintain records

Title:	Operating plant or machinery for non-operational activities in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
8 Continued	8.8 Describe the needs of other occupations and how to effectively communicate within a team when operating plant or machinery for non-operational activities.
	8.9 Describe how to maintain the plant and machinery, hand tools, ancillary equipment and/or accessories used when operating plant or machinery for non-operational activities.

Title:	Operating plant or machinery for non-operational activities in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ structure. <u>ProQual Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction):</u> **Two** of the following endorsements required: Hand-operated power tools Static machinery Pedestrian controlled equipment Tracked plant Wheeled plant Rollers
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	33

Title:	Diagnosing faults in plant or machinery systems or components in the workplace
Unit Number:	L/616/4462

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when diagnosing faults in plant or machinery systems or components.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, manufacturers' information and current regulations associated with diagnosing faults in plant or machinery systems or components.
2 Know how to comply with relevant legislation and official guidance when diagnosing faults in plant or machinery systems or components.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when diagnosing faults in plant or machinery systems or components.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when diagnosing faults in plant or machinery systems or components.
	3.2 Comply with information relating to specific risks to health when diagnosing faults in plant or machinery systems or components.

Title:	Diagnosing faults in plant or machinery systems or components in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to diagnosing faults in plant or machinery systems or components, and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to diagnose faults in plant or machinery systems or components.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – hand tools, portable powered tools, specialist diagnostic and testing tools and ancillary equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area, volume and wastage associated with the method/procedure to diagnose faults in plant and machinery systems and components.

Title:	Diagnosing faults in plant or machinery systems or components in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when diagnosing faults in plant or machinery systems or components.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when diagnosing faults in plant or machinery systems or components.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to diagnose faults in plant or machinery systems or components to the required specification.	7.1 Demonstrate the following work skills when diagnosing faults in plant or machinery systems or components: – selecting, investigating, interrogating, observing, listening, smelling, feeling, applying, identifying, collecting, analysing, interpreting, diagnosing and reporting.
	7.2 Identify and diagnose functional and operational faults in plant or machinery, systems or components to given working instructions for four of the following: – power unit – transmission – steering – hydraulics – pump – brakes – pneumatics – electrical – electronic – operating ancillaries or attachments.

Title:	Diagnosing faults in plant or machinery systems or components in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.3 Complete functional, operational and safety checks on plant or machinery systems or components, to given working instructions.
	7.4 Complete and maintain records when diagnosing faults in plant or machinery systems or components.
	7.5 Safely use and handle materials, hand tools, portable power tools, specialist diagnostic and testing tools and ancillary equipment.
	7.6 Safely store the materials, tools and equipment used when diagnosing faults in plant or machinery systems or components.
	7.7 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – collect and collate information from operators and users on symptoms and problems – consider information from existing records – analyse information to define the diagnosis start point – investigate and establish the most likely causes of the faults – observe the operational functions of plant and machinery components and systems – interpret sounds and smells – collect and analyse data from diagnostic aids; multi-meters, pressure and flow gauges, computers, test lamps, portable appliance testing equipment and other specialist tools and equipment – identify faults and determine the cause – determine and suggest repair requirements for faults in power units, transmissions, steering, hydraulic systems, pumps, brakes, pneumatic systems, electrical systems, electronic components and operating ancillaries and attachments – categorise faults by type (continual, intermittent or breakdown) – apply situational awareness to select routine and non-routine fault diagnosis procedures – determine the implications of faults for other work and the operational safety of the plant or machinery – report, mark, tag and place notices on plant and machinery systems and components deemed hazardous

Title:	Diagnosing faults in plant or machinery systems or components in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.7 Contd – use hand tools, specialist diagnostic and testing tools, portable power tools and equipment – work at height – use access equipment – complete and maintain records.
	7.8 Describe the needs of other occupations and how to effectively communicate within a team when diagnosing faults in plant or machinery systems or components.
	7.9 Describe how to maintain the tools and equipment used when diagnosing faults in plant or machinery systems or components.

Title:	Diagnosing Faults in Plant or Machinery Systems or Components in the Workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ structure. <u>ProQual Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction):</u> **Four** of the following endorsements required: Power unit Transmission Steering Hydraulic Pump Brake Pneumatic Electrical Electronic Operating ancillaries and attachments
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	80

Title:	Determining and completing service to maintain plant or machinery in the workplace
Unit Number:	A/617/3724

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when determining and completing service to maintain plant or machinery.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, procedures, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, procedures method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, manufacturers' information and current regulations associated with the service and maintenance of plant or machinery.
2 Know how to comply with relevant legislation and official guidance when determining and completing service to maintain plant or machinery.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when determining and completing service to maintain plant or machinery.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when determining and completing service to maintain plant or machinery.
	3.2 Comply with information relating to specific risks to health when determining and completing service to maintain plant or machinery.

Title:	Determining and completing service to maintain plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to determining and completing service to maintain plant or machinery and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to determine and complete service to maintain plant or machinery.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – fluids, fuels, lubricants and coolants – service items: filters, drive belts, brake components, bulbs, fuses, gaskets and seals – fastenings, nuts and bolts, pins and clips – hand tools, portable powered tools and equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, volume, length, area and wastage associated with the method/procedure to service and maintain plant and machinery.

Title:	Determining and completing service to maintain plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when determining and completing service to maintain plant or machinery.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when determining and completing service to maintain plant or machinery.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to determine and complete service to maintain plant or machinery to the required specification.	7.1 Demonstrate the following work skills when determining and completing service to maintain plant or machinery: – replenishing, replacing, lubricating, unfastening, adjusting, aligning, assembling, positioning, fixing, fastening, securing and calibrating.
	7.2 Determine and complete service to maintain plant or machinery to given working instructions: – replenish or replace fluids, fuels, lubricants, coolants – replace service items (filters, drive belts, brake components, bulbs, fuses, gaskets, seals) – lubricate parts, components, linkages, cables – flush through cooling, lubrication and fluid systems – clean parts and components – secure fastenings (nuts, bolts, caps, plugs etc.) – replace components – carry out adjustments to specification.

Title:	Determining and completing service to maintain plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.3 Complete functional, operational and safety checks on plant or machinery, to given working instructions.
	7.4 Complete and maintain records when determining and completing service to maintain plant or machinery.
	7.5 Safely use and handle materials, hand tools, portable power tools and ancillary equipment.
	7.6 Safely store the materials, tools and equipment used when determining and completing service to maintain plant or machinery.
	7.7 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – refer to workshop and parts manuals, guides and technical service bulletins, electronic data and cross reference information – apply routine and non-routine maintenance service methods and procedures – identify requirements of periodic, scheduled and event based servicing methods – replenish or replace fluids, fuels, lubricants, coolants – replace service items (filters, drive belts, brake components, bulbs, fuses, gaskets, seals) – lubricate parts, components, linkages, cables – flush through cooling, lubrication and fluid systems – clean parts and components – secure fastenings (nuts, bolts, caps, plugs etc.) – replace components – make adjustments and adaptions to maintain operational effectiveness, efficiency and economy – work systems and components with high and low temperature surfaces – work on pressurised systems and components – check for defects by sight, touch, smell and sound – complete functional operational and safety checks – inform others in accordance with operational requirements – use hand tools, portable power tools and equipment – work at height – use access equipment – complete and maintain records.

Title:	Determining and completing service to maintain plant or machinery in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.8 Describe the needs of other occupations and how to effectively communicate within a team when determining and completing service to maintain plant or machinery.
	7.9 Describe how to maintain the tools and equipment used when determining and completing service to maintain plant or machinery.

Title:	Determining and Completing Service to Maintain Plant or Machinery in the Workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	63

Title:	Determining and advising on the viability of repair or replacement for returning plant or machinery to service in the workplace
Unit Number:	J/617/3726

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when determining and advising on the viability of repair or replacement for returning plant or machinery to service.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, procedures, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, price lists and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, procedures, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, price lists, manufacturers' information and current regulations associated with construction plant or machinery maintenance.
2 Know how to comply with relevant legislation and official guidance when determining and advising on the viability of repair or replacement for returning plant or machinery to service.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when determining and advising on the viability of repair or replacement for returning plant or machinery to service.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when determining and advising on the viability of repair or replacement for returning plant or machinery to service.

Title:	Determining and advising on the viability of repair or replacement for returning plant or machinery to service in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.2 Comply with information relating to specific risks to health when determining and advising on the viability of repair or replacement for returning plant or machinery to service.
	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to determining and advising on the viability of repair or replacement for returning plant or machinery to service, and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to determine and advise on the viability of repair or replacement for returning plant or machinery to service.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – hand tools, portable powered tools, specialist measuring and inspection instruments and ancillary equipment – fixings/fittings.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.

Title:	Determining and advising on the viability of repair or replacement for returning plant or machinery to service in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
4 Continued	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area, volume and wastage associated with the method/procedure to determine the work required and the value of returning plant or machinery to service.
5 Minimise the risk of damage to the work and surrounding area when determining and advising on the viability of repair or replacement for returning plant or machinery to service.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when determining and advising on the viability of repair or replacement for returning plant or machinery to service.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.

Title:	Determining and advising on the viability of repair or replacement for returning plant or machinery to service in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Comply with the given contract information to determine and advise on the viability of repair or replacement for returning plant or machinery to service to the required specification.	7.1 Demonstrate the following work skills when determining and advising on the viability of repair or replacement for returning plant or machinery to service: – inspecting, measuring, checking, collecting, collating, analysing, recording and reporting.
	7.2 Determine and advise on the viability of repair or replacement by inspecting and assessing plant or machinery to given working instructions, with consideration of five of the following: – time – labour costs – cost of component, sub-assemblies and parts – cost of consumables – cost of overheads (transport, delivery, operational down time, power consumption, specialist tools and services) – cost of replacement, like for like – cost of replacement, alternative item of plant or machinery – benefits of replacement – availability of resources and capability – report findings.
	7.3 Complete and maintain records when determining and advising on the viability of repair or replacement for returning plant or machinery to service
	7.4 Safely use and handle materials, hand tools, portable power tools, specialist measuring and inspection instruments and ancillary equipment.
	7.5 Safely store the materials, tools and equipment used when determining and advising on the viability of repair or replacement for returning plant or machinery to service.

Title:	Determining and advising on the viability of repair or replacement for returning plant or machinery to service in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.6 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – inspect plant or machinery to determine the work requirements – estimate costs: time and labour, component, sub-assemblies, parts, consumables, overheads (transport, delivery, operational down time, power consumption, specialist tools and services) – identify the cost of like for like replacement – identify different items of plant and machinery that will provide the same and improved operational service – consider the benefits of replacement – report findings – use hand tools, portable power tools, specialist measuring and inspection instruments and ancillary equipment – work at height – use access equipment – complete and maintain records.
	7.7 Describe the needs of other occupations and how to effectively communicate within a team when determining and advising on the viability of repair or replacement for returning plant or machinery to service.
	7.8 Describe how to maintain the tools and equipment used when determining and advising on the viability of repair or replacement for returning plant or machinery to service.

Title:	Determining and advising on the viability of repair or replacement for returning plant or machinery to service in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	93

Title:	Inspecting plant or machinery for operational serviceability in the workplace
Unit Number:	J/616/4461

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when inspecting plant or machinery for operational serviceability.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, manufacturers' information and current regulations associated with the inspection, examination and test of plant and machinery.
2 Know how to comply with relevant legislation and official guidance when inspecting plant or machinery for operational serviceability.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when inspecting plant or machinery for operational serviceability.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when inspecting plant or machinery for operational serviceability.
	3.2 Comply with information relating to specific risks to health when inspecting plant or machinery for operational serviceability.

Title:	Inspecting plant or machinery for operational serviceability in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating inspecting plant or machinery for operational serviceability and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to inspect plant or machinery for operational serviceability.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – inspection equipment – fixings – hand tools, portable powered tools, specialist tools and equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area and wastage associated with the method/procedure to inspect plant and machinery for operational serviceability.

Title:	Inspecting plant or machinery for operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when inspecting plant or machinery for operational serviceability.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when inspecting plant or machinery for operational serviceability.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to inspect plant or machinery for operational serviceability to the required specification.	7.1 Demonstrate the following work skills when inspecting plant or machinery for operational serviceability: – inspecting, checking, recording and reporting.
	7.2 Complete the following inspections to given working instructions: – routine checks, daily, weekly – periodic e.g. monthly, annual, number, hours run – pre-use, delivery – post-use, return, off hire.
	7.3 Record and report results and findings of inspection using the appropriate method, in accordance with given working instructions.
	7.4 Safely use and handle materials, hand tools, specialist tools, portable power tools and ancillary equipment.
	7.5 Safely store the materials, tools and equipment used when inspecting plant or machinery for operational serviceability.

Title:	Inspecting plant or machinery for operational serviceability in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.6 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – identify inspection criteria – conduct inspections, daily/weekly, periodic (monthly, annual, number and hours run), pre-use and post-use and returned items – identify the difference between test, inspection and thorough examination – check the calibration of inspection tools and equipment – use specialist inspection equipment and test and diagnostic aids – identify deterioration, damage, excess wear and leaks – identify non-critical defects – identify critical defects – classify the serviceability of plant and machinery – consider plant and machinery life expectancy – report findings – use hand tools, portable power tools, specialist tools and equipment – work at height – use access equipment – complete and maintain records.
	7.7 Describe the needs of other occupations and how to effectively communicate within a team inspecting plant or machinery for operational serviceability.
	7.8 Describe how to maintain the tools and equipment used when inspecting plant or machinery for operational serviceability.

Title:	Inspecting plant or machinery for operational serviceability in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	87

Title:	Handing over plant or machinery to the control of others in the workplace
Unit Number:	M/616/4468

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when handing over plant or machinery to the control of others.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, manufacturers' information and current regulations associated with the operation and use of plant and machinery.
2 Know how to comply with relevant legislation and official guidance when handing over plant or machinery to the control of others.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when handing over plant or machinery to the control of others.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when handing over plant or machinery to the control of others.
	3.2 Comply with information relating to specific risks to health when handing over plant or machinery to the control of others.

Title:	Handing over plant or machinery to the control of others in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to handing over plant or machinery to the control of others and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to hand over plant or machinery to the control of others.	4.1 Select resources associated with own work in relation to tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – literature, forms and documents – hand tools, portable powered tools and equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area and wastage associated with the method/procedure to hand over plant and machinery to others.

Title:	Handing over plant or machinery to the control of others in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when handing over plant or machinery to the control of others.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when handing over plant or machinery to the control of others.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to hand over plant or machinery to the control of others to the required specification.	7.1 Demonstrate the following work skills when handing over plant or machinery to the control of others: – liaising, explaining, presenting, demonstrating, instructing, confirming, communicating and assessing.
	7.2 Explain and demonstrate the operation of plant or machinery to given working instructions in order to hand over control to others.
	7.3 Complete and maintain records when handing over plant or machinery to the control of others.
	7.4 Safely use and handle materials, hand tools, portable power tools and ancillary equipment.
	7.5 Safely store the materials, tools and equipment used when handing over plant or machinery to the control of others.

Title:	Handing over plant or machinery to the control of others in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.6 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – liaise with customers, hirers, colleagues and end users – clearly define the moment of transferred responsibility – assess and confirm the condition of plant and machinery – confirm the suitability of the handover environment – prepare plant or machinery for explanation and demonstration – instruct users and operators in the operation, safety and emergency requirements – demonstrate the operation of plant and machinery – explain statutory requirements, inspection, maintenance, report of thorough examination, tests and certification – present and explain documentation: safety literature, operating instructions and operator forms – complete and register the handover: forms, checklists, confirmation, acceptance and receipt forms – explain the availability of technical support, guidance, information, advice, breakdown, call out, guarantees, warranties and replacement – communicate in a way that maintains goodwill – use hand tools, portable power tools and equipment – work at height – use access equipment – complete and maintain records.
	7.7 Describe the needs of other occupations and how to effectively communicate within a team when handing over plant or machinery to the control of others.
	7.8 Describe how to maintain the tools and equipment used when handing over plant or machinery to the control of others.

Title:	Handing Over Plant or Machinery to the Control of Others in the Workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	63

Title:	Providing technical information, advice and guidance to users of plant or machinery in the workplace
Unit Number:	Y/615/1987

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when providing technical information, advice and guidance to users of plant or machinery.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, manufacturers' information and current regulations associated with the operation and use of plant and machinery.
2 Know how to comply with relevant legislation and official guidance when providing technical information, advice and guidance to users of plant or machinery.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when providing technical information, advice and guidance to users of plant or machinery.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when providing technical information, advice and guidance to users of plant or machinery.
	3.2 Comply with information relating to specific risks to health when providing technical information, advice and guidance to users of plant or machinery.

Title:	Providing technical information, advice and guidance to users of plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to providing technical information, advice and guidance to users of plant or machinery, and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to provide technical information, advice and guidance to users of plant or machinery.	4.1 Select resources associated with own work in relation to materials, components, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – literature, forms and documents – hand and/or portable powered tools and equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area and wastage associated with the method/procedure to provide technical information, advice and guidance to users of plant and machinery.

Title:	Providing technical information, advice and guidance to users of plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when providing technical information, advice and guidance to users of plant or machinery.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when providing technical information, advice and guidance to users of plant or machinery.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to provide technical information, advice and guidance to users of plant or machinery to the required specification.	7.1 Demonstrate the following work skills when providing technical information, advice and guidance to users of plant or machinery: – interpreting, analysing, explaining, advising, confirming, answering, replacing, referring and informing.
	7.2 Provide technical information and advice to given working instructions for operators of plant or machinery for two of the following: – at breakdown – on handover – on request – under terms of contract, guarantee, warranty or hire agreement – on recall – modification or alteration.

Title:	Providing technical information, advice and guidance to users of plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.3 Complete and maintain records when providing technical information, advice and guidance to users of plant or machinery.
	7.4 Safely use and handle materials, hand tools, portable power tools and ancillary equipment.
	7.5 Safely store the materials, tools and equipment used when providing technical information, advice and guidance to users of plant or machinery.
	7.6 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – provide information advice and guidance to users and operators: on handover, at breakdowns, on request, under terms of contract, guarantee, warranty or hire agreement and for manufacturers' recall – explain the information, advice and guidance available – use situational awareness to interpret the information and advice required – analyse the information available to provide answers – refer to other sources of information: colleagues, multi media – source and supply replacement literature and documentation – inform on progress – provide information, advice and guidance in a manner that maintains goodwill – confirm the information, advice and guidance given is appropriate – use hand tools, portable power tools and equipment – work at height – use access equipment – complete and maintain records.
	7.7 Describe the needs of other occupations and how to effectively communicate within a team when providing technical information, advice and guidance to users of plant or machinery.
	7.8 Describe how to maintain the tools and equipment used when providing technical information, advice and guidance to users of plant or machinery.

Title:	Providing technical information, advice and guidance to users of plant or machinery in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ structure. <u>ProQual Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction):</u> **Two** of the following endorsements required: Breakdown Handover Request Contract/guarantee/warranty/hire agreement
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	63

Title:	Installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting in the workplace
Unit Number:	R/616/4463

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, manufacturers' information and current regulations associated with heating, welding, brazing, soldering and thermal cutting.
2 Know how to comply with relevant legislation and official guidance when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
	2.4 Describe the types of fire extinguishers available when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting and describe how and when they are used.

Title:	Installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Maintain safe and healthy working practices when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.
	3.2 Comply with information relating to specific risks to health when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.
	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to install, repair or modify construction resources by heating, welding, brazing, soldering and thermal cutting.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – jigs and fixings – consumables, gases, welding rods/wires – solders and fluxes – hand tools, portable powered tools, heating, welding and cutting equipment.

Title:	Installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
4 Continued	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area, volume and wastage associated with the method/procedure to heat, weld, braze, solder and thermal cut construction resources.
5 Minimise the risk of damage to the work and surrounding area when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.

Title:	Installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Comply with the given contract information to install, repair or modify construction resources by heating, welding, brazing, soldering and thermal cutting.	7.1 Demonstrate the following work skills when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting: – measuring, marking out, fitting, heating, preparing, positioning, securing, joining, cutting and finishing.
	7.2 Heat components to given working instructions to achieve two of the following: – free components (thermal shock) – heat treat – reduce or remove corrosion – adjust (localised/spot) – expansion and contraction fit.
	7.3 Join ferrous and non-ferrous metals to given working instructions using two of the following welding techniques: – oxygen and fuel gas – manual metal arc – metal inert gas shielded or metal active gas shielded – tungsten inert gas shielded.
	7.4 Join metals to given working instructions by brazing using oxygen and fuel gas.
	7.5 Join metals by soldering to given working instructions using one of the following techniques: – oxygen and fuel gas – iron and flux – electrical soldering iron.
	7.6 Create two of the following joints in metals: – butt – lap – fillet – corner.
	7.7 Carry out joint work to given working instructions for two of the following positions: – flat – vertical / horizontal – vertical – overhead.
	7.8 Cut materials by thermal cutting using one of the following: – oxy fuel gas arc – plasma arc.

Title:	Installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.9 Safely use and handle materials, hand tools, portable power tools, welding, heating and cutting equipment, ancillaries and gases.
	7.10 Safely move gases when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.
	7.11 Safely store the materials, tools, equipment and gases used when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.
	7.12 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – assess requirements for the repair or maintenance of metal by joining, heating and cutting – validate appropriate ways in which the work should be carried out – maintain the principles of minimum intervention and reversible alterations – protect surrounding components – identify metal properties – relate equilibrium diagrams to metal types/properties – purge and vent tanks and containers (gas free certification) – work with hot materials and components – identify the advantages and disadvantages of welding processes; oxygen and fuel gas, manual metal arc, metal inert gas or metal active gas and tungsten inert gas shielded – apply principles and methods of preparing, joining, cutting and heating ferrous and non-ferrous metals (type of joint, material thickness, gaps, measuring, cleaning, position, tacks, pre-treatment, parameters, nozzle, voltage, amperes, wire speed, flow rates, restarts, post-treatment) – join metals by welding, soldering and brazing – recognise joint types (butt, lap, fillet, corner) – inspect joints by non-destructive testing (visual, x-ray and dye penetrates, ultraviolet and ultrasonic) and destructive testing (bend test, tensile, nick break and weld etch) – finish and dress joints – cut materials using thermal cutting methods, oxy fuel gas, plasma arc

7 Continued	7.12 Contd	– recognise the effects of applying heat to metal (distortion, heat effected zone) – use and store fuel gases – recognise and determine when specialist skills and knowledge are required and report accordingly – use hand tools, portable power tools and equipment – work at height – use access equipment.
	7.13	Describe the needs of other occupations associated with heating, welding, brazing, soldering and thermal cutting and how to effectively communicate within a team when installing, repairing or modifying construction resources.
	7.14	Describe how to maintain the tools and equipment used when installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting.

Title:	Installing, repairing or modifying construction resources by heating, welding, brazing, soldering and thermal cutting in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ structure. ProQual Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction): ***Heating**: Two of the following endorsements required:* *Components freed* *Heat treatment* *Corrosion reduction/removal* *Adjustment* *Expansion and contraction fit* ***Welding**: Two of the following endorsements required:* *Oxygen and fuel gas* *Manual metal arc* *MIG or MAG* *Tungsten inert gas* ***Soldering**: One of the following endorsements required:* *Oxygen and fuel gas* *Iron and flux* *Electric soldering iron* ***Joints:** Two of the following endorsements required:* *Butt* *Lap* *Fillet* *Corner* ***Positions:** Two of the following endorsements required:* *Flat* *Vertical/horizontal* *Vertical* *Overhead* ***Thermal cutting**: One of the following endorsements required:* *Oxy fuel gas* *Plasma*
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	100

Title:	Producing one-off components to restore or maintain the operational functions of plant or machinery in the workplace
Unit Number:	Y/616/4464

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when producing one-off components to restore or maintain the operational functions of plant or machinery.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, workshop manuals, parts manuals, manufacturers' information and current regulations governing and associated with plant and machinery maintenance.
2 Know how to comply with relevant legislation and official guidance when producing one-off components to restore or maintain the operational functions of plant or machinery.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when producing one-off components to restore or maintain the operational functions of plant or machinery	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when producing one-off components to restore or maintain the operational functions of plant or machinery.
	3.2 Comply with information relating to specific risks to health when producing one-off components to restore or maintain the operational functions of plant or machinery.

Title:	Producing one-off components to restore or maintain the operational functions of plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to producing one-off components to restore or maintain the operational functions of plant or machinery and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to produce one-off components to restore or maintain the operational functions of plant or machinery.	4.1 Select resources associated with own work in relation to materials, components, fixings, fittings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – plant and machinery components – fixings and fittings – consumables – hand tools, portable power tools, powered tools and equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area, volume and wastage associated with the method/procedure to produce one–off components to restore or maintain the operational function of plant and machinery.

Title:	Producing one-off components to restore or maintain the operational functions of plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when producing one-off components to restore or maintain the operational functions of plant or machinery.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when producing one-off components to restore or maintain the operational functions of plant or machinery.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to produce one-off components to restore or maintain the operational functions of plant or machinery to the required specification.	7.1 Demonstrate the following work skills when produce one-off components to restore or maintain the operational functions of plant or machinery: – measuring, marking out, disassembling, cutting, drilling, filing, shaping, joining, assembling, fitting, fixing and securing.
	7.2 Produce two one-off components by modification and/or replacement to given working instructions (e.g. for emergency or temporary repair (safety or operational), to counter operational time delays, when manufacturers component(s) are unavailable or obsolete, when it is cost effective or specialist tools).
	7.3 Complete functional, operational and safety checks on one-off components produced, to given working instructions.

Title:	Producing one-off components to restore or maintain the operational functions of plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.4 Complete and maintain records when producing one-off components to restore or maintain the operational functions of plant or machinery.
	7.5 Safely use and handle materials, hand tools, portable power tools, power tools and ancillary equipment.
	7.6 Safely store the materials, tools and equipment used when producing one-off components to restore or maintain the operational functions of plant or machinery.
	7.7 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – assess requirements for repair or maintenance – validate appropriate ways in which the work should be carried out – maintain the principles of minimum intervention and reversible alteration – determine the durability of the one off component, temporary or permanent – transfer dimensions and measurements (hole location and spacing) – produce templates – work from patterns, representative work pieces and components – produce one-off components for emergency and temporary repair (safety and operational), to counter operational time delays, when it is cost effective and to make specialist tools – apply manufacturers' criteria for the production of specialist tools – determine the characteristics of materials and differing mating surfaces (cast iron, steel, alloy, plastic) – select and modify existing components by shaping, cutting, drilling, filing, threading (internal and external), fabrication, welding and machining – select methods of securing one off components, bolts, screws, clamps, rivets, joints (thermal and adhesive) and specialist retaining devices (circlips, cotter pins, woodruff keys)

Title:	Producing one-off components to restore or maintain the operational functions of plant or machinery in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.7 Contd – recover and store reusable materials and components – use hand tools, portable power tools, power tools and equipment – work at height – use access equipment – complete and maintain records
	7.8 Describe the needs of other occupations and how to effectively communicate within a team when producing one-off components to restore or maintain the operational functions of plant or machinery.
	7.9 Describe how to maintain the tools and equipment used when producing one-off components to restore or maintain the operational functions of plant or machinery.

Title:	Producing One-off Components to Restore or Maintain the Operational Functions of Plant or Machinery in the Workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	63

Title:	Installing plant or machinery for operational activities in the workplace	
Unit Number:	D/616/4465	
Learning outcomes The learner will be able to:		**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when installing plant or machinery for operational activities.		1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, installation manuals and manufacturers' information.
		1.2 Comply with information and/or instructions derived from risk assessments and method statements.
		1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
		1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, installation manuals manufacturers' information and current regulations associated with the installation of plant and machinery.
2 Know how to comply with relevant legislation and official guidance when installing plant or machinery for operational activities.		2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
		2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
		2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when installing plant or machinery for operational activities.		3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when installing plant or machinery for operational activities.
		3.2 Comply with information relating to specific risks to health when installing plant or machinery for operational activities.

Title:	Installing plant or machinery for operational activities in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to installing plant or machinery for operational activities and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to install plant or machinery for operational activities.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability limitations and defects associated with the resources in relation to: – lifting accessories – fastening, ties, anchors and fixings – consumables – measuring and levelling equipment – hand tools, portable powered tools and equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, volume, area and wastage associated with the method/procedure to install plant or machinery for operational activities.

Title:	Installing plant or machinery for operational activities in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when installing plant or machinery for operational activities.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when installing plant or machinery for operational activities.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to install plant or machinery for operational activities to the required specification.	7.1 Demonstrate the following work skills when installing plant or machinery for operational activities: – measuring, marking, aligning, laying, levelling, plumbing, adjusting, fitting, connecting, fixing, fastening and securing.
	7.2 Install plant or machinery to given working instructions for one of the following types: – crane (mobile or ringer) – tower crane – hoist (passenger, goods or building maintenance units) – rig (demolition, piling or drilling) – excavation or vacuum plant or machinery – batching, mixing or blending plants – crushing or screening plants – power generation equipment – pump – climate management machines – concrete placing boom.

Title:	Installing plant or machinery for operational activities in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.3 Complete functional, operational and safety checks on plant or machinery, to given working instructions.
	7.4 Complete and maintain records when installing plant or machinery for operational activities.
	7.5 Safely use and handle materials, hand tools, portable power tools, measuring instruments and ancillary equipment.
	7.6 Safely store the materials, tools and equipment used when installing plant or machinery for operational activities.
	7.7 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – install plant and machinery; mobile and ringer cranes, tower cranes, passenger and goods hoists, piling and drilling rigs, excavation plant or machinery, batching plants, crushing and screening plants, power generation equipment, pumps, climate management machines – assess suitability of conditions for installation requirements (site layout, location, availability of space, levels, prevailing weather conditions) – operate and control lifting equipment and lifting aids – confirm the integrity of lifting accessories – consider the resources required for the installation of plant and machinery – confirm parts, components, attachments, accessories are available to complete the installation – secure plant and machinery parts and components for movement and lifting into position – align, attach and secure plant and machinery parts and components (tied in, pinned, clamped, bolted and screwed) – fixing plant or machinery to load bearing structures – install and test anchors and ties – route, lay, connect and secure cables, pipes and hoses – connect power supplies – make adjustments to ensure optimum operational function – liaise with client, customer or their representatives – deal with damages and defects that can occur during installation, misaligned components, cracked casings and housings, leaks, scoring and marking of parts and components and breakages – confirm installation functionality meets quality expectations – complete functional operational and safety checks – use hand tools, portable power tools and equipment – work at height – use access equipment – complete and maintain records.

Title:	Installing plant or machinery for operational activities in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.8 Describe the needs of other occupations and how to effectively communicate within a team when installing plant or machinery for operational activities.
	7.9 Describe how to maintain the tools and equipment used when installing plant or machinery for operational activities.

Title:	Installing Plant or Machinery for Operational Activities in the Workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ structure. <u>ProQual Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction):</u> **One** of the following endorsements required: Mobile or ringer crane Tower crane Hoist Rig (piling/drilling/demolition) Excavation/vacuum plant machinery Batching/mixing/blending plant Crushing/screening plant Power generation equipment Pump Climate management machines Concrete placing boom
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	120

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace
Unit Number:	H/616/4466

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when carrying out specific tests on plant or machinery to determine operational serviceability.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, manufacturers' information and current regulations associated with the specific testing of plant or machinery.
2 Know how to comply with relevant legislation and official guidance when carrying out specific tests on plant or machinery to determine operational serviceability.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Maintain safe and healthy working practices when carrying out specific tests on plant or machinery to determine operational serviceability.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when carrying out specific tests on plant or machinery to determine operational serviceability.
	3.2 Comply with information relating to specific risks to health when carrying out specific tests on plant or machinery to determine operational serviceability.
	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to carrying out specific tests on plant or machinery to determine operational serviceability and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to carry out specific tests on plant or machinery to determine operational serviceability.	4.1 Select resources associated with own work in relation to materials, components, fixings/fittings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – fixings and fittings – hand tools, portable power tools, specialist test equipment and ancillary equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
4 Continued	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, volume, area and wastage associated with the method/procedure to conduct specific tests on plant or machinery to determine operational serviceability.
5 Minimise the risk of damage to the work and surrounding area when carrying out specific tests on plant or machinery to determine operational serviceability.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when carrying out specific tests on plant or machinery to determine operational serviceability.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Comply with the given contract information to carry out specific tests on plant or machinery to determine operational serviceability to the required specification.	7.1 Demonstrate the following work skills when carrying out specific tests on plant or machinery to determine operational serviceability: – measuring, testing and comparing.
	7.2 Complete specific tests to given working instructions on four of the following: – electric systems – cooling systems – lubrication systems – emission control – hydraulic systems – hydrostatic drive – transmission systems – pneumatic systems – braking systems – vibration management – steering/suspension systems – generator output control – electronic management – powered access equipment – material handling equipment – water pumps – craneage – lifting equipment – load testing (cranes, hoists, MEWPs, MHE)
	7.3 Complete tests to given working instructions for the following: – statutory requirement – compliance with policy and procedures – operational efficiency (speeds, flow rates, consumption, emissions, outputs).
	7.4 Complete functional, operational and safety checks on plant or machinery, to given working instructions.
	7.5 Complete and maintain records when carrying out specific tests on plant or machinery to determine operational serviceability.
	7.6 Safely use and handle materials, hand tools, portable power tools, specialist test equipment and ancillary equipment.
	7.7 Safely store the materials, tools and equipment used when carrying out specific tests on plant or machinery to determine operational serviceability.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.8 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – isolate plant, machinery and components – confirm calibration of test equipment – test electric systems, cooling systems, lubrication systems, hydraulic systems, hydrostatic drive, transmission systems, pneumatic systems, braking systems, vibration management, steering/suspension systems, generator output control, electronic management, powered access equipment, material handling equipment, water pumps, craneage, lifting equipment and load testing (cranes, hoists, MEWPs, MHE) – conduct tests for statutory requirements, compliance with policy and procedures and operational efficiency (speeds, flow rates, consumption, emissions, output) – collect measurements, readings, input and output data, working cycle times and tolerances – identify and assess the relevance of inconsistent data – make allowances for situation, environment, atmospheric conditions – operate pressure gauge, flow gauge, multi-meter, portable appliance testing equipment, computer aided diagnostic software, test lamp, compression measurement equipment and timing devices – analyse information collected; make comparisons with other plant and machinery, consider previous knowledge, apply sensory abilities (visual, audible, touch and smell) consult manufacturers' information and results of other tests – compare and confirm test outcome with given specifications – report findings – use hand tools, portable power tools and equipment – work at height – use access equipment – complete and maintain records.
	7.9 Describe the needs of other occupations and how to communicate effectively within a team when carrying out specific tests on plant or machinery to determine operational serviceability.
	7.10 Describe how to maintain the tools and equipment used when carrying out specific tests on plant or machinery to determine operational serviceability.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ Structure. <u>ProQual Level 3 NVQ Diploma in Construction Plant or Machinery Maintenance (Construction):</u> At least **four** of the following endorsements required: Electric systems Cooling systems Lubrication systems Emission control Hydraulic systems Hydrostatic drive Transmission systems Pneumatic systems Braking systems Vibration management Steering/suspension systems Generator output control Electronic management Powered access equipment Material handling equipment Water pumps Craneage Lifting equipment Load testing (cranes, hoists, MEWPs, MHE)
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit credit value	24
Unit guided learning hours	110

Title:	Configuring plant or machinery for specific operational activities in the workplace
Unit Number:	K/616/4467

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when configuring plant or machinery for specific operational activities.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, manufacturers' information and current regulations associated with the configuration of plant and machinery.
2 Know how to comply with relevant legislation and official guidance when configuring plant or machinery for specific operational activities.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when configuring plant or machinery for specific operational activities.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when configuring plant or machinery for specific operational activities.
	3.2 Comply with information relating to specific risks to health when configuring plant or machinery for specific operational activities.

Title:	Configuring plant or machinery for specific operational activities in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to configuring plant or machinery for specific operational activities and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to configure plant or machinery for specific operational activities.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – fixings and fittings – hand tools, portable powered tools and ancillary equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, volume, area and wastage associated with the method/procedure to configure plant or machinery for specific operational activities.

Title:	Configuring plant or machinery for specific operational activities in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when configuring plant or machinery for specific operational activities.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when configuring plant or machinery for specific operational activities.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to configure plant or machinery for specific operational activities to the required specification.	7.1 Demonstrate the following work skills when configuring plant or machinery for specific operational activities: – measuring, marking, aligning, fitting, adjusting, fixing, fastening and securing.
	7.2 Configure plant or machinery for specific operational activities to given working instructions for two of the following: – attachments – ancillaries – fire prevention (spark arrestors) – structural support (anchors and ties) – safety (restricted movement, passage or access, warning alarms, notices, lights or governors) – contaminant reduction (noise, gases, fluids) – carriage of ancillaries or additional equipment – rail and trackside

Title:	Configuring plant or machinery for specific operational activities in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.2 contd – cutting equipment (blade or teeth angles and aspects) – additions (publicity boards, notices, lights) – machine control (laser measurement or guidance, global positioning system) – productivity measurement (weigh load sensors, compaction sensors).
	7.3 Complete functional, operational and safety checks on plant or machinery, to given working instructions.
	7.4 Complete and maintain records when configuring plant or machinery for specific operational activities.
	7.5 Safely use materials, hand tools, portable power tools and ancillary equipment.
	7.6 Safely store the materials, tools and equipment used when configuring plant or machinery for specific operational activities.
	7.7 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – assess requirements for configuration – validate appropriate ways in which the work should be carried out – configure plant and machinery for the following: attachments, ancillaries, fire prevention (spark arrestors), structural support (anchors and ties), safety (restricted movement, passage or access, warning alarms, notices, lights or governors), contaminant reduction (noise, gases, fluids), carriage of ancillaries or additional equipment, rail and trackside work, cutting equipment (blade or teeth angles, coatings, dressings and aspects), additions (publicity boards, notices, lights), machine control (laser measurement and guidance, global positioning system), productivity measurement (weigh load sensors, compaction sensors) – ensure the required parameters are achieved for the specific operational activity – liaise with operators, customers, clients and their representatives – use hand tools, portable power tools and ancillary equipment – work at height – use access equipment – complete and maintain records.

Title:	Configuring plant or machinery for specific operational activities in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.8 Describe the needs of other occupations and how to effectively communicate within a team when configuring plant or machinery for specific operational activities.
	7.9 Describe how to maintain the tools and equipment used when configuring plant or machinery for specific operational activities.

Title:	Configuring Plant or Machinery for Specific Operational Activities in the Workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment and in accordance with the ConstructionSkills 'Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ structure. <u>ProQual Level 3 NVQ Diploma in Construction Plant and Machinery Maintenance (Construction):</u> **Two** of the following endorsements required: Attachments Ancillaries Fire prevention Structural support Safety measures Contaminant reduction Carriage of ancillaries/additional equipment Rail and trackside Cutting equipment Additions (e.g. publicity boards, notices, lights) Machine control Productivity measurement
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	70

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