

Specification

**Edexcel NVQ/competence-
based qualifications**

**Edexcel Level 1 NVQ Certificate in Plant Maintenance
(Construction) (QCF)**

**Edexcel Level 2 NVQ Diploma in Plant Maintenance
(Construction) (QCF)**

For first registration October 2010

Edexcel, a Pearson company, is the UK's largest awarding organisation offering vocational and academic qualifications and testing, to employers, training providers, colleges, schools, and other places of learning in the UK, and in over 85 countries worldwide.

Our specialist suite of qualifications include NVQs, Apprenticeships, WorkSkills, Functional Skills, Foundation Learning, as well as our exclusive range of BTECs, from entry level right through to Higher National Diplomas.

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Qualification titles covered by this specification

This specification gives you the information you need to offer the Edexcel NVQs in Plant Maintenance:

Qualification title	Qualification Accreditation Number (QAN)	Accreditation start date
Edexcel Level 1 NVQ Certificate in Plant Maintenance (Construction) (QCF)	500/9160/8	01/08/2010
Edexcel Level 2 NVQ Diploma in Plant Maintenance (Construction) (QCF)	500/9161/X	01/08/2010

These qualifications have been accredited within the Qualifications and Credit Framework (QCF) and are eligible for public funding as determined by the Department for Education (DfE) under Sections 96 and 97 of the Learning and Skills Act 2000.

The qualification titles listed above feature in the funding lists published annually by the DfE and the regularly updated website. They will also appear on the Learning Aims Database (LAD), where relevant.

You should use the QCF Qualification Accreditation Number (QAN), when you wish to seek public funding for your learners. Each unit within a qualification will also have a unique QCF reference number, which is listed in this specification.

The QCF qualification title and unit reference numbers will appear on the learners' final certification document. Learners need to be made aware of this when they are recruited by the centre and registered with Edexcel.

These titles replace the following qualifications from 1st August 2010:

Qualification title	Qualification Accreditation Number (QAN)	Accreditation start date	Accreditation end date
Edexcel Level 2 NVQ in Plant Maintenance	100/5586/1	01/09/2005	31/12/2010

Key features of the Edexcel NVQs in Plant Maintenance

These qualifications:

- are nationally recognised
- are based on the ConstructionSkills National Occupational Standards (NOS). The NOS, Assessment Requirements/strategy and qualification structure(s) are owned by ConstructionSkills.

The Edexcel Level 2 NVQ Diploma in Plant Maintenance (Construction) (QCF) has been approved as a component for the ConstructionSkills Apprenticeship framework.

What is the purpose of these qualifications?

These qualifications are appropriate for employees in the construction and the built environment sector working across a broad range of areas. They are designed to assess occupational competence in the workplace where learners are required to demonstrate skills and knowledge to a level required in the construction industry.

Who are these qualifications for?

These qualifications are for all learners aged 16 and above who are capable of reaching the required standards.

Edexcel's policy is that the qualifications should:

- be free from any barriers that restrict access and progression
- ensure equality of opportunity for all wishing to access the qualifications.

What are the benefits of these qualifications to the learner and employer?

These qualifications allow learners to demonstrate competence against National Occupational Standards which are based on the needs of the construction and the built environment industry as defined by ConstructionSkills, the Sector Skills Council. As such they contribute to the development of skilled labour in the sector. The Edexcel Level 2 NVQ Diploma in Plant Maintenance (Construction) (QCF) may contribute towards the competence element of an Apprenticeship.

What are the potential job roles for those working towards these qualifications?

- Plant operator.

What progression opportunities are available to learners who achieve these qualifications?

These qualifications allow learners to demonstrate competence in plant maintenance at a level required by the construction and the built environment industry. Learners can progress across the level and size of the construction and the built environment competence and knowledge qualifications and into other occupational areas such as team leading and Management.

Further information is available in *Annexe A*.

What is the qualification structure for the Edexcel Level 1 NVQ Certificate in Plant Maintenance (Construction) (QCF)?

Individual units can be found in the *Units* section. The QCF level and credit value are given on the first page of each unit.

Learners must complete all units in Group A. A total of 24 credits.

A - Mandatory units

Learners must complete all units in Group A.

Credit value required: minimum 24.

L/600/8292 - Contributing to a safe working environment for plant maintenance activities in the workplace

D/600/8295 - Carrying out basic maintenance of plant and equipment in the workplace

H/600/8301 - Carrying out bench fitting activities to maintain plant or equipment in the workplace

F/600/8306 - Operating plant for no load conditions in the workplace

What is the qualification structure for the Edexcel Level 2 NVQ Diploma in Plant Maintenance (Construction) (QCF)?

Individual units can be found in the *Units* section. The QCF level and credit value are given on the first page of each unit.

Learners must complete all units in Group A and a minimum of three units from Group B. A total of 95 credits (minimum).

A - Mandatory units

Learners must complete all units in Group A.

Credit value required: minimum 62.

- J/600/8310 - Carrying out the servicing and maintenance of plant and equipment in the workplace
- Y/600/8313 - Removing and replacing plant and equipment components in the workplace
- K/600/8316 - Dismantling and assembling plant and equipment components in the workplace
- A/600/8319 - Maintaining the work area for plant maintenance and repair activities in the workplace
- A/600/8322 - Carrying out routine inspections on plant and equipment to ensure operational serviceability in the workplace
- M/600/8334 - Diagnosing faults in plant or equipment systems and components in the workplace

B - Optional units

Learners must complete a minimum of three units in Group B.

Credit value required: minimum 33.

- A/600/8336 - Repairing plant and equipment by soldering and welding ferrous and non-ferrous materials in the workplace
- F/600/8340 - Producing or modifying one-off components for use with plant or equipment in the workplace
- L/600/8390 - Moving plant related loads by manual lifting and using manually operated load handling equipment in the workplace
- Y/600/8392 - Installing plant or equipment for operational activities in the workplace

- H/600/8394 - Carrying out specific tests on plant and equipment to determine operational serviceability in the workplace
- M/600/8396 - Configuring plant or equipment for operational activities in the workplace
- Y/600/8411 - Carrying out familiarisation or handover activities to users of plant and equipment in the workplace

How are the qualifications graded and assessed?

The overall grade for each qualification is a 'pass'. The learner must achieve all the required units within the specified qualification structure.

To pass a unit the learner must:

- achieve **all** the specified learning outcomes
- satisfy **all** the assessment criteria by providing sufficient and valid evidence for each criterion
- show that the evidence is their own.

The qualifications are designed to be assessed:

- in the workplace or
- in conditions resembling the workplace, as specified in the Assessment Requirements/strategy for the sector, or
- as part of a training programme.

Assessment Requirements/Strategy

The Assessment Requirements/Strategy for these qualifications have/have been included in *Annexe E*. They have been developed by Construction Skills in partnership with employers, training providers, awarding organisations and the regulatory authorities. The assessment strategy includes details on:

- criteria for defining realistic working environments
- roles and occupational competence of assessors, expert witnesses, internal verifiers and standards verifiers
- quality control of assessment
- evidence requirements.

Evidence of competence may come from:

- **current practice** where evidence is generated from a current job role
- a **programme of development** where evidence comes from assessment opportunities built into a learning/training programme whether at or away from the workplace
- the **Recognition of Prior Learning (RPL)** where a learner can demonstrate that they can meet the assessment criteria within a unit through knowledge, understanding or skills they already possess without undertaking a course of learning. They must submit sufficient, reliable and valid evidence for internal and standards verification purposes. RPL is acceptable for accrediting a unit, several units or a whole qualification
- a **combination** of these.

It is important that the evidence is:

Valid	relevant to the standards for which competence is claimed
Authentic	produced by the learner
Current	sufficiently recent to create confidence that the same skill, understanding or knowledge persist at the time of the claim
Reliable	indicates that the learner can consistently perform at this level
Sufficient	fully meets the requirements of the standards.

Types of evidence

To successfully achieve a unit the learner must gather evidence which shows that they have met the required standard in the assessment criteria. Evidence can take a variety of different forms including the following examples:

- direct observation of the learner's performance by their assessor
- outcomes from oral or written questioning
- products of the learner's work
- personal statements and/or reflective accounts
- outcomes from simulation, where permitted by the assessment strategy
- professional discussion
- assignment, project/case studies
- authentic statements/witness testimony
- expert witness testimony
- reflective accounts
- evidence of Recognition of Prior Learning.

Learners can use one piece of evidence to prove their knowledge, skills and understanding across different assessment criteria and/or across different units. It is, therefore, not necessary for learners to have each assessment criterion assessed separately. Learners should be encouraged to reference the assessment criteria to which the evidence relates.

Evidence must be made available to the assessor, internal verifier and Edexcel standards verifier. A range of recording documents is available on the Edexcel website (www.edexcel.com). Alternatively, centres may develop their own.

Additional Requirements

The Joint Awarding Body and the SSC Working Practices Group have identified additional requirements that are needed to assess and quality assure qualifications placed on the QCF that use NVQ within their title. These requirements are shown in *Annexe D: Additional Requirements for Qualifications that use the title NVQ within the QCF.*

What do you need to offer these qualifications?

Centre recognition

Centres that have not previously offered Edexcel qualifications need to apply for and be granted centre recognition as part of the process for approval to offer individual qualifications. New centres must complete both a centre recognition approval application and a qualification approval application.

Existing centres will be given 'automatic approval' for a new qualification if they are already approved for a qualification that is being replaced by the new qualification and the conditions for automatic approval are met.

Centres already holding Edexcel approval are able to gain qualification approval for a different level or different sector via Edexcel online.

Approvals agreement

All centres are required to enter into an approvals agreement which is a formal commitment by the head or principal of a centre to meet all the requirements of the specification and any linked codes or regulations. Edexcel will act to protect the integrity of the awarding of qualifications, if centres do not comply with the agreement. This could result in the suspension of certification or withdrawal of approval.

Quality assurance

Detailed information on Edexcel's quality assurance processes is given in *Annexe B*.

What resources are required to deliver these qualifications?

Each qualification is designed to support learners working in the Construction and the Built Environment sector. Physical resources need to support the delivery of the qualifications and the assessment of the learning outcomes and must be of industry standard. Centres must meet any specific resource requirements outlined in *Annexe E: Assessment Requirements/strategy*. Staff assessing the learner must meet the requirements within the overarching assessment strategy for the sector.

Unit format

Each unit in this specification contains the following sections.

Unit title:	The unit title is accredited on the QCF and this form of words will appear on the learner's Notification of Performance (NOP).						
Unit reference number:	This code is a unique reference number for the unit.						
QCF level:	All units and qualifications within the QCF have a level assigned to them, which represents the level of achievement. There are nine levels of achievement, from Entry level to level 8. The level of the unit has been informed by the QCF level descriptors and, where appropriate, the NOS and/or other sector/professional.						
Credit value:	All units have a credit value. The minimum credit value is one, and credits can only be awarded in whole numbers. Learners will be awarded credits when they achieve the unit.						
Guided learning hours:	A notional measure of the substance of a qualification. It includes an estimate of the time that might be allocated to direct teaching or instruction, together with other structured learning time, such as directed assignments, assessments on the job or supported individual study and practice. It excludes learner-initiated private study.						
Unit summary:	This provides a summary of the purpose of the unit.						
Assessment requirements/evidence requirements:	The assessment/evidence requirements are determined by the SSC. Learners must provide evidence for each of the requirements stated in this section.						
Assessment methodology:	This provides a summary of the assessment methodology to be used for the unit.						
Learning outcomes:	Assessment criteria:	Evidence type:	<table border="1"> <tr> <td>Portfolio reference:</td> <td>Date:</td> </tr> <tr> <td>The learner should use this box to indicate where the evidence can be obtained eg portfolio page number.</td> <td>The learner should give the date when the evidence has been provided.</td> </tr> </table>	Portfolio reference:	Date:	The learner should use this box to indicate where the evidence can be obtained eg portfolio page number.	The learner should give the date when the evidence has been provided.
Portfolio reference:	Date:						
The learner should use this box to indicate where the evidence can be obtained eg portfolio page number.	The learner should give the date when the evidence has been provided.						
Learning outcomes state exactly what a learner should know, understand or be able to do as a result of completing a unit.	The assessment criteria of a unit specify the standard a learner is expected to meet to demonstrate that a learning outcome, or a set of learning outcomes, has been achieved.	Learners must reference the type of evidence they have and where it is available for quality assurance purposes. The learner can enter the relevant key and a reference. Alternatively, the learner and/or centre can devise their own referencing system.					

Units

Unit 1 : Contributing to a safe working environment for plant maintenance activities in the workplace

Unit reference number: L/600/8292

QCF level: 1

Credit value: 4

Guided learning hours: 14

Unit summary

The aim of this unit is to illustrate the skills, knowledge and understanding required to confirm competence in contributing to a safe working environment for plant maintenance in the workplace within the relevant sector of industry.

Assessment Requirements/evidence requirements

This unit must be assessed in a work environment and in accordance with :

- the Additional Requirements for Qualifications using the title NVQ in QCF
- the ConstructionSkills Consolidated Assessment Strategy for Construction and the Built Environment – Craft, Supervisory, Technical, Managerial and Professional Units and Qualifications with NVQ in the Qualification and Credit Framework (QCF) title and SVQs.

Assessors for this unit must use a combination of the following assessment methods:

- observation of normal work activities within the workplace that clearly confirms the required skills
- questioning the learner on knowledge criteria that clearly confirms the required understanding
- review other forms of evidence that can clearly confirm industry required skills, knowledge and understanding.

Assessors for this unit must have verifiable, current industry experience and a sufficient depth of occupational expertise and knowledge of contributing to a safe working environment for plant maintenance to be effective and reliable when confirming a learner's competence.

Workplace evidence of skills cannot be simulated.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>1 Identify and deal with hazards in the work area when maintaining plant.</p>	<p>1.1 comply with current health and safety legislation, and other relevant regulations and guidelines applicable to plant maintenance activities</p> <p>1.2 identify industrial processes, environmental, tools, plant, equipment, substances and materials that have the potential to cause harm in line with agreed and approved procedures</p> <p>1.3 take appropriate action to minimize risks from identified plant maintenance hazards by isolating the hazard or stopping work activities following given level of responsibility, and report hazards identified and actions taken to the appropriate person</p> <p>1.4 describe health and safety legislation, regulations, safe working practices and procedures, and the use of personal protective equipment (PPE) relevant to plant maintenance activities</p> <p>1.5 state hazard spotting and safety assessment methods, and techniques, the procedures to be followed to identify hazards, and reasons for contributing and assisting in carrying out assessments</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>1.6 name the types of hazards involving processes, tools, equipment, materials and personal hygiene applicable to plant maintenance activities and state the effects that hazards can have on people, property and the environment</p> <p>1.7 state the organisational safety reporting procedures and instructions, how to report health and safety issues relating to workplace hazards and to whom the issues should be reported to</p>			
<p>2 Respond to emergencies in the work area when maintaining plant.</p>	<p>2.1 demonstrate calling for expert help in events resulting in injury to self or others, plant or equipment faults or hazards arising within the work area</p> <p>2.2 demonstrate following organisational shut down and evacuation procedures promptly</p> <p>2.3 demonstrate taking prompt and appropriate action to minimise risks to personal and third-party injury, and damage to property and equipment whilst prioritising the actions. Actions will include:</p> <ul style="list-style-type: none"> - shutting down plant and machinery, - using relevant fire extinguishers and methods suitable for plant maintenance operations, - preventing further injury and damage to equipment , property and structures, - reporting the emergency following organisational procedures 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>2.4 list the classifications of fire types and causes and state how to deal with each type</p> <p>2.5 state the organisational evacuation procedures for the workplace, responsibilities and limitations in dealing with emergencies and evacuations, how to raise the alarm, where the fire points are and how to deal with them</p> <p>2.6 state the organisational procedures for dealing with first aid, who the approved first aiders are, and location of first aid equipment in the workplace</p> <p>2.7 state the organisational procedures for reporting and recording accidents, incidents and near misses, procedures for reporting emergencies and evacuations, and when to inform others</p>			
<p>3 Reinststate the work area after plant maintenance activities.</p>	<p>3.1 separate equipment, components and materials from waste items and materials associated with plant maintenance activities and store reusable materials, parts, components, fuels, coolants, fluids and equipment in an appropriate location</p> <p>3.2 restore work areas to a safe and tidy condition following given directions in accordance with agreed requirements and schedules</p> <p>3.3 dispose of hazardous and non-hazardous waste materials from plant maintenance activities following organisational and environmentally safe procedures</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>3.4 demonstrating dealing promptly and effectively with problems and report those that cannot be solved</p> <p>3.5 state organisational required standards of cleanliness and tidiness, the types of requirements for users of the work area, and types of and how to use cleaning equipment and spillage materials to restore the work area</p> <p>3.6 describe the types of waste materials generated when maintaining plant and how to remove hazards from oil, grease, sand, earth, fuel, fluids etc</p> <p>3.7 state typical plant parts, equipment and materials that can be reused, the ways and methods of storing re-useable items, and organisational procedures for returning unused materials, tools and components back to storage</p> <p>3.8 state the organisational procedures for disposing of hazardous and non-hazardous materials and substances, and procedures for reporting problems with reinstating the work area following plant maintenance activities</p>			

Learner name: _____

Date: _____

Learner signature: _____

Date: _____

Assessor signature: _____

Date: _____

Internal verifier signature: _____

Date: _____

(if sampled)

Unit 2: Carrying out basic maintenance of plant and equipment in the workplace

Unit reference number: D/600/8295

QCF level: 1

Credit value: 4

Guided learning hours: 14

Unit summary

The aim of this unit is to illustrate the skills, knowledge and understanding required to confirm competence in carrying out basic maintenance of plant and equipment in the workplace within the relevant sector of industry.

Assessment Requirements/evidence requirements

This unit must be assessed in a work environment and in accordance with:

- the Additional Requirements for Qualifications using the title NVQ in QCF
- the Construction Skills Consolidated Assessment Strategy for Construction and the Built Environment – Craft, Supervisory, Technical, Managerial and Professional Units and Qualifications with NVQ in the Qualification and Credit Framework (QCF) title and SVQs.

Assessors for this unit must use a combination of the following assessment methods:

- observation of normal work activities within the workplace that clearly confirms the required skills
- questioning the learner on knowledge criteria that clearly confirms the required understanding
- review other forms of evidence that can clearly confirm industry required skills, knowledge and understanding.

Assessors for this unit must have verifiable, current industry experience and a sufficient depth of occupational expertise and knowledge of carrying out basic maintenance of plant and equipment to be effective and reliable when confirming a learner's competence.

Workplace evidence of skills cannot be simulated.

This unit must be assessed against one of the following endorsements:

- heavy earthmoving plant and equipment
- cranes and lifting equipment
- building and associated plant
- civil engineering plant
- road building plant
- small plant and tools
- powered access equipment (electric)
- powered access equipment (diesel)
- powered access equipment (bi-energy)
- piling equipment
- tunnelling equipment
- lift trucks (electric)
- lift trucks (diesel)
- lift trucks (gas)
- plant electrics (dc auto)
- plant electrics (ac)
- engine and transmission reconditioning
- road/rail plant
- hydraulic attachments.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>1 Work safely at all times when carrying out basic maintenance on plant and equipment.</p>	<p>1.1 comply with current health and safety legislation, and other relevant regulations and guidelines applicable to basic maintenance activities of plant and equipment</p> <p>1.2 use personal protective equipment (PPE) relevant to plant basic maintenance activities</p> <p>1.3 describe health and safety legislation, regulations, safe working practices and procedures and company health and safety policies and workplace procedures that apply to plant maintenance activities</p> <p>1.4 describe the safe and correct use of personal protective equipment (PPE), manual handling procedures and typical safety checks on specific items of plant and equipment</p> <p>1.5 state reasons for the care and protection of surrounding areas and persons affected by the work, and possible injuries through the release of substances and slipping on wet/greasy surfaces</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>2 Follow the relevant maintenance schedules to carry out the required work.</p>	<p>2.1 identify and extract applicable maintenance schedules and related specifications from relevant information sources</p> <p>2.2 outline basic maintenance schedules and durations for typical plant and equipment within the occupational area</p> <p>2.3 describe typical information contained within manufacturer operator manuals</p>			
<p>3 Maintain a range of plant and equipment in both operational and non-operational situations</p>	<p>3.1 carry out typical basic maintenance activities according to manufacturer's specifications and organisational procedures within the limits of their personal authority</p> <p>3.2 maintain to a basic level, typical plant and equipment relevant to the occupational area within maintenance workshops, and on sites and/or client's premises</p> <p>3.3 describe the routine maintenance methods and procedures required by manufacturers, and the organisational instructions and procedures when maintaining plant and equipment</p> <p>3.4 outline the types of available resources, tools and equipment and their suitability for different maintenance tasks, and the different application techniques for fuels, lubricants and coolants</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>3.5 carry out basic maintenance activities in the specified sequence and complete the activities within the agreed timescale</p> <p>3.6 describe how to carry out sensory, functional and safety checks on the plant and equipment on prior to, during and on completion of basic maintenance tasks as specified by the manufacturers</p>			
<p>4 Comply with the procedures for non-planned occurrences when carrying out basic maintenance on plant and equipment.</p>	<p>4.1 demonstrate following procedures where the maintenance activities cannot be fully met, or where there are identified defect outside of the planned schedule</p> <p>4.2 describe typical problems that can occur during basic maintenance tasks on plant and equipment within the occupational area, and how recognised problems can be rectified</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
5 Comply with organisational maintenance records documentation procedures and waste disposal procedures when carrying out basic maintenance on plant and equipment.	5.1 complete relevant maintenance records accurately and pass them onto the appropriate person 5.2 dispose of waste materials and substances in accordance with safe working practices and approved procedures 5.3 outline the type of maintenance records kept by the organisation and the service history of individual machines 5.4 describe the importance of keeping servicing and maintenance records, organisational and statutory requirements for record keeping, operational efficiency in keeping records and customer requirements (where applicable) of requiring accurate records 5.5 state the organisational procedures for handling and disposing of waste materials and substances 5.6 describe the maintenance authorisation procedures as specified by the manufacturer and the organisation (applicable to customer requirements) 5.7 outline the organisations' reporting lines and communication procedures associated with maintaining plant and equipment			

Learner name: _____

Date: _____

Learner signature: _____

Date: _____

Assessor signature: _____

Date: _____

Internal verifier signature: _____

Date: _____

(if sampled)

Unit 3:

Carrying out bench fitting activities to maintain plant or equipment in the workplace

Unit reference number:	H/600/8301
QCF level:	1
Credit value:	12
Guided learning hours:	40

Unit summary

The aim of this unit is to illustrate the skills, knowledge and understanding required to confirm competence in carrying out bench fitting activities to maintain plant or equipment in the workplace within the relevant sector of industry.

Assessment Requirements/evidence requirements

This unit must be assessed in a work environment and in accordance with:

- the Additional Requirements for Qualifications using the title NVQ in QCF
- the Construction Skills Consolidated Assessment Strategy for Construction and the Built Environment – Craft, Supervisory, Technical, Managerial and Professional Units and Qualifications with NVQ in the Qualification and Credit Framework (QCF) title and SVQs.

Assessors for this unit must use a combination of the following assessment methods:

- observation of normal work activities within the workplace that clearly confirms the required skills
- questioning the learner on knowledge criteria that clearly confirms the required understanding
- review other forms of evidence that can clearly confirm industry required skills, knowledge and understanding.

Assessors for this unit must have verifiable, current industry experience and a sufficient depth of occupational expertise and knowledge of carrying out bench fitting activities to maintain plant or equipment to be effective and reliable when confirming a learner's competence.

Workplace evidence of skills cannot be simulated.

This unit must be assessed against one of the following endorsements:

- oxyacetylene gas
- manual arc
- manual inert arc.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>1 Work safely and at all times when carrying out bench fitting activities to maintain plant or equipment.</p>	<p>1.1 comply with current health and safety legislation, and other relevant regulations and guidelines applicable to bench fitting activities</p> <p>1.2 use personal protective equipment (PPE) relevant to bench fitting</p> <p>1.3 describe health and safety legislation, regulations and safe working practices, and company health and safety policies and workplace procedures that apply to bench fitting and shaping activities including:</p> <ul style="list-style-type: none"> - hand and power tool use - removing and replacing tooling and guarding - types, purpose and limitations of each types of personal protective equipment (PPE) relating to bench fitting 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>2 Interpret specifications when carrying out bench fitting activities to maintain plant or equipment.</p>	<p>2.1 follow all relevant drawings, sketches, specifications, work pieces or working from a pattern to produce and shape components to maintain plant</p> <p>2.2 describe different sources of information on specifications and how to interpret:</p> <ul style="list-style-type: none"> - engineering drawings - free-hand sketches - specification sheets/drawings - representative work pieces 			
<p>3 Prepare to carry out bench fitting activities to produce components to maintain plant or equipment.</p>	<p>3.1 obtain the appropriate tools and equipment for shaping operations and check they are in a safe and usable condition</p> <p>3.2 mark out ferrous and non-ferrous materials from given specifications using measuring and marking equipment</p> <p>3.3 state the types and uses of various marking out equipment and methods of marking out materials prior to shaping, cutting, filing and drilling</p> <p>3.4 state how to handle and secure ferrous and non-ferrous materials and the safety precautions to be taken</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>3 Prepare to carry out bench fitting activities to produce components to maintain plant or equipment.</p>	<p>3.5 list typical ferrous and non-ferrous materials used in components to maintain plant, state the characteristics and limitations of each, and typical standard sizes and lengths of stock material</p> <p>3.6 state how to select, prepare, check, sharpen (where relevant), set up, care for, use and store the following hand, power and marking out tools and equipment:</p> <ul style="list-style-type: none"> - drills, files, saws, taps, dies, chisels, reamers and hand drills - portable power and pedestal drills and grinders, both electric and pneumatic - scribes, centre punches, squares and rules <p>3.7 state the reasons, components and methods of carrying out safety checks prior to using electrical powered tools</p>			
<p>4 Carry out shaping operations to produce a range of components using a range of materials, to maintain plant or equipment.</p>	<p>4.1 shape ferrous and non-ferrous materials to form components that conform to given tolerances. Components must be shaped using the following forms:</p> <ul style="list-style-type: none"> - straight - curved - angled - chamfered - bevelled 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>4.2 use hand tools, power tools and work holding equipment relevant to bench fitting activities</p> <p>4.3 demonstrate the following work skills when shaping and producing components to maintain plant:</p> <ul style="list-style-type: none"> - filing - sawing - grinding (off-hand) - drilling - chiselling - cutting - tapping and threading - reaming <p>4.4 check that the finished components have been completed to the required specification, are fit for purpose and within specified tolerances</p> <p>4.5 state typical hand tool shaping methods, techniques, processes and procedures to remove and shape materials and produce holes to size and tolerance when using:</p> <ul style="list-style-type: none"> - hacksaws, files and chisels for removing and shaping materials - drills, dies, taps and reamers <p>4.6 outline the different processes for shaping, forming, cutting and producing surface finishes on materials</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
5 Know how to deal with problems promptly and effectively and report those that cannot be solved.	5.1 state the organisations' reporting lines and procedures associated with bench fitting activities			

Learner name: _____

Date: _____

Learner signature: _____

Date: _____

Assessor signature: _____

Date: _____

Internal verifier signature: _____

Date: _____

(if sampled)

Unit 4: **Operating plant for no load conditions in the workplace**

Unit reference number: F/600/8306

QCF level: 1

Credit value: 4

Guided learning hours: 14

Unit summary

The aim of this unit is to illustrate the skills, knowledge and understanding required to confirm competence in operating plant for no load conditions in the workplace within the relevant sector of industry.

Assessment Requirements/evidence requirements

This unit must be assessed in a work environment and in accordance with:

- the Additional Requirements for Qualifications using the title NVQ in QCF
- the Construction Skills Consolidated Assessment Strategy for Construction and the Built Environment – Craft, Supervisory, Technical, Managerial and Professional Units and Qualifications with NVQ in the Qualification and Credit Framework (QCF) title and SVQs.

Assessors for this unit must use a combination of the following assessment methods:

- observation of normal work activities within the workplace that clearly confirms the required skills
- questioning the learner on knowledge criteria that clearly confirms the required understanding
- review other forms of evidence that can clearly confirm industry required skills, knowledge and understanding.

Assessors for this unit must have verifiable, current industry experience and a sufficient depth of occupational expertise and knowledge of operating plant for no load conditions to be effective and reliable when confirming a learner's competence.

Workplace evidence of skills cannot be simulated.

This unit must be assessed against one of the following endorsements:

- heavy earthmoving plant and equipment
- cranes and lifting equipment
- building and associated plant
- civil engineering plant
- road building plant
- small plant and tools
- powered access equipment (electric)
- powered access equipment (diesel)
- powered access equipment (bi-energy)
- piling equipment
- tunnelling equipment
- lift trucks (electric)
- lift trucks (diesel)
- lift trucks (gas)
- plant electrics (dc auto)
- plant electrics (ac)
- engine and transmission reconditioning
- road/rail plant
- hydraulic attachments.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>1 Identify and prepare plant for no load condition operations.</p>	<p>1.1 confirm the operations for which the plant is to be used and comply with work instructions and procedures</p> <p>1.2 carry out pre-start checks on the plant in accordance with manufacturers' approved procedures, organisational practices and statutory requirements and confirm ready and safe for functional checks</p> <p>1.3 identify and record defects found during preparation activities and, if applicable, take appropriate actions to correct defects, in accordance with supervisor/authorised person directions</p> <p>1.4 describe health and safety legislation, regulations, safe working practices and procedures, company health and safety policies, workplace procedures and use personal protective equipment (PPE) that apply to safe operations of plant</p> <p>1.5 describe the type, purpose and characteristics of plant and equipment being used within the occupational area, and the type of work that can be carried out and how the equipment is to be used</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 describe the different types of power supply that can be used on plant within the occupational area. 1.7 Outline the manufacturers and organisational pre-operational checks, and recommendations for routine checks			
2 Operate plant to carry out no load functional checks and check for defects.	2.1 carry out starting and stopping procedures, including emergency-stops, and confirm functional in accordance with manufacturers' instructions and statutory requirements 2.2 run and operate plant to carry out no load functional checks on all relevant components and functions as directed by a supervisor/authorised person 2.3 describe the organisational procedures, manufacturers' instructions and statutory requirements for the starting, stopping and use of controls and safety devices on plant and equipment 2.4 outline the handling techniques of the plant 2.5 describe the methods, procedures and precautions to be carried out before and during functional checks to identify defects			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>3 Carry out stopping and shut down procedures on plant.</p>	<p>3.1 stop and shut down plant according to manufacturers' instructions and organisational procedures</p> <p>3.2 carry out post-stop checks in accordance with organisational and operational procedures</p> <p>3.3 leave plant safe and secure in accordance with organisational procedures, and manufacturers' and statutory requirements</p> <p>3.4 describe the post-stop check procedures and precautions on plant applicable to the occupational area</p>			
<p>4 Identify and record operating defects and confirm the plant is ready for use should no defects be found.</p>	<p>4.1 identify defects in performance during pre-use and functional checks, record noted defects and report to the appropriate person</p> <p>4.2 confirm that the plant is safe, correct and ready for operational use in accordance with work, manufacturers', organisational and statutory requirements</p> <p>4.3 refer problems and conditions outside of their responsibility to an authorised person</p> <p>4.4 describe the types of surface damage to plant and recognise what parts or components are worn or damaged</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	4.5 describe what consumables and components can be replaced by them as allowed by organisational requirements 4.6 describe the organisational procedures and practices for identifying and reporting defects in plant and the monitoring and maintenance checks that are required 4.7 ensure all work is carried out to approved procedures and practices in accordance with statutory requirements			
5 Know the approved procedures and practices to be followed when carrying out functional no load checks on plant.	5.1 state the organisations' reporting lines and communication instructions and procedures for the checking of plant 5.2 outline the organisational authorisation procedures for the use and operation of plant			

Learner name: _____

Date: _____

Learner signature: _____

Date: _____

Assessor signature: _____

Date: _____

Internal verifier signature: _____

Date: _____

(if sampled)

Unit 5: Carrying out the servicing and maintenance of plant and equipment in the workplace

Unit reference number: J/600/8310

QCF level: 2

Credit value: 8

Guided learning hours: 27

Unit summary

The aim of this unit is to illustrate the skills, knowledge and understanding required to confirm competence in carrying out the servicing and maintenance of plant and equipment in the workplace within the relevant sector of industry.

Assessment Requirements/evidence requirements

This unit must be assessed in a work environment and in accordance with:

- the Additional Requirements for Qualifications using the title NVQ in QCF
- the Construction Skills Consolidated Assessment Strategy for Construction and the Built Environment – Craft, Supervisory, Technical, Managerial and Professional Units and Qualifications with NVQ in the Qualification and Credit Framework (QCF) title and SVQs.

Assessors for this unit must use a combination of the following assessment methods:

- observation of normal work activities within the workplace that clearly confirms the required skills
- questioning the learner on knowledge criteria that clearly confirms the required understanding
- review other forms of evidence that can clearly confirm industry required skills, knowledge and understanding.

Assessors for this unit must have verifiable, current industry experience and a sufficient depth of occupational expertise and knowledge of carrying out the servicing and maintenance of plant and equipment to be effective and reliable when confirming a learner's competence.

Workplace evidence of skills cannot be simulated.

This unit must be assessed against one of the following endorsements:

- heavy earthmoving plant and equipment
- cranes and lifting equipment
- building and associated plant
- civil engineering plant
- road building plant
- small plant and tools
- powered access equipment (electric)
- powered access equipment (diesel)
- powered access equipment (bi-energy)
- piling equipment
- tunnelling equipment
- lift trucks (electric)
- lift trucks (diesel)
- lift trucks (gas)
- plant electrics (dc auto)
- plant electrics (ac)
- engine and transmission reconditioning
- road/rail plant
- hydraulic attachments.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>1 Work safely at all times when servicing and maintaining plant and equipment.</p>	<p>1.1 comply with current health and safety legislation, and other relevant regulations and guidelines applicable to the servicing and maintenance of plant and equipment</p> <p>1.2 use personal protective equipment (PPE) relevant to plant servicing and maintenance activities</p> <p>1.3 describe health and safety legislation, regulations, safe working practices and procedures and company health and safety policies and workplace procedures that apply to the servicing and maintenance activities</p> <p>1.4 describe the safe and correct use of personal protective equipment (PPE), manual handling procedures and typical safety checks on specific items of plant and equipment</p> <p>1.5 state reasons for the care and protection of surrounding areas and persons affected by the work, and possible injuries through the release of substances and slipping on wet/greasy surfaces</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>2 Follow the relevant maintenance and servicing schedules to carry out the required work.</p>	<p>2.1 identify and extract applicable servicing and maintenance schedule information from relevant information sources</p> <p>2.2 outline servicing and maintenance schedules and durations for typical plant and equipment with the occupational area</p> <p>2.3 describe typical information contained within workshop manuals, parts manuals, cross-reference guides and technical servicing bulletins</p>			
<p>3 Service and maintain a range of plant and equipment in both operational and non-operational situations.</p>	<p>3.1 carry out typical servicing and maintenance activities according to manufacturer's specifications and organisational procedures within the limits of their personal authority</p> <p>3.2 service and maintain typical plant and equipment relevant to the occupational area within maintenance workshops, and on sites and/or client's premises</p> <p>3.3 describe the routine and non-routine maintenance methods and procedures required by the manufacturer, the periodic servicing methods and servicing schedules, and the organisational instructions and procedures when servicing and maintaining plant and equipment</p> <p>3.4 outline the types of available resources, tools and equipment and their suitability for different servicing and maintenance tasks, and the different application techniques for fuels, lubricants and coolants</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>3.5 carry out basic maintenance activities in the specified sequence and complete the activities within the agreed timescale</p> <p>3.6 describe how to carry out sensory, functional and safety checks on the plant and equipment prior to, during and on completion of basic maintenance tasks as specified by the manufacturers</p>			
<p>4 Comply with the procedures for non-planned occurrences when servicing and maintaining plant and equipment.</p>	<p>4.1 demonstrate following procedures where the servicing and maintenance activities cannot be fully met, or where there are identified defect outside of the planned schedule</p> <p>4.2 describe typical problems that can occur during servicing and maintenance tasks on plant and equipment within the occupational area, and how recognised problems can be rectified</p>			
<p>5 Comply with organisational servicing and maintenance records documentation procedures and waste disposal procedures when servicing and maintaining plant and equipment.</p>	<p>5.1 complete relevant maintenance records accurately and pass them onto the appropriate person</p> <p>5.2 dispose of waste materials and substances in accordance with safe working practices and approved procedures</p> <p>5.3 outline the type of maintenance records kept by the organisation and the service history of individual machines</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	5.4 describe the importance of keeping servicing and maintenance records, organisational and statutory requirements for record keeping, operational efficiency in keeping records and customer requirements (where applicable) of requiring accurate records 5.5 state the organisational procedures for handling and disposing of waste materials and substances 5.6 describe the maintenance authorisation procedures as specified by the manufacturer and the organisation (applicable to customer requirements) 5.7 outline the organisations' reporting lines and communication procedures associated with servicing and maintaining plant and equipment			

Learner name: _____

Date: _____

Learner signature: _____

Date: _____

Assessor signature: _____

Date: _____

Internal verifier signature: _____

Date: _____

(if sampled)

Unit 6: Removing and replacing plant and equipment components in the workplace

Unit reference number:	Y/600/8313
QCF level:	2
Credit value:	12
Guided learning hours:	40

Unit summary

The aim of this unit is to illustrate the skills, knowledge and understanding required to confirm competence in removing and replacing plant and equipment components in the workplace within the relevant sector of industry.

Assessment Requirements/evidence requirements

This unit must be assessed in a work environment and in accordance with:

- the Additional Requirements for Qualifications using the title NVQ in QCF
- the ConstructionSkills Consolidated Assessment Strategy for Construction and the Built Environment
- Craft, Supervisory, Technical, Managerial and Professional Units and Qualifications with NVQ in the Qualification and Credit Framework (QCF) title and SVQs.

Assessors for this unit must use a combination of the following assessment methods:

- observation of normal work activities within the workplace that clearly confirms the required skills
- questioning the learner on knowledge criteria that clearly confirms the required understanding
- review other forms of evidence that can clearly confirm industry required skills, knowledge and understanding.

Assessors for this unit must have verifiable, current industry experience and a sufficient depth of occupational expertise and knowledge of removing and replacing plant and equipment components to be effective and reliable when confirming a learner's competence.

Workplace evidence of skills cannot be simulated.

This unit must be assessed against one of the following endorsements:

- heavy earthmoving plant and equipment
- cranes and lifting equipment
- building and associated plant
- civil engineering plant
- road building plant
- small plant and tools
- powered access equipment (electric)
- powered access equipment (diesel)
- powered access equipment (bi-energy)
- piling equipment
- tunnelling equipment
- lift trucks (electric)
- lift trucks (diesel)
- lift trucks (gas)
- plant electrics (dc auto)
- plant electrics (ac)
- engine and transmission reconditioning
- road/rail plant
- hydraulic attachments.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Work safely at all times when removing and replacing plant and equipment components.	1.1 comply with current health and safety legislation and other relevant regulations and guidelines applicable to the removing and replacing plant and equipment components 1.2 use personal protective equipment (PPE) relevant to plant maintaining activities 1.3 describe health and safety legislation, regulations, safe working practices and procedures and company health and safety policies and workplace procedures that apply when removing and replacing plant and equipment components 1.4 state health and safety issues and describe reasons for possible injuries when removing and replacing plant components			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Carry out preparation activities in order to remove plant and equipment components.	2.1 identify and extract applicable information from relevant information sources to aid the removal and replacement of plant and equipment components 2.2 establish and, where appropriate, mark component orientation to aid re-assembly 2.3 ensure that any stored energy or substances are released safely and correctly 2.4 describe different sources of information and technical literature to aid the removal and replacement of components from various items of plant and equipment 2.5 outline types of marking which need to be made to components prior to removal 2.6 describe the materials handling methods, preparation methods and techniques required to remove components and the types of isolation and disconnection that have to be made when removing components on plant and equipment			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
<p>3 Remove components from a range of plant and equipment used in construction and allied industries in both operational and non-operational situations.</p>	<p>3.1 unfasten and remove various types of components using approved tools and techniques and demonstrate the following removal techniques or procedures:</p> <ul style="list-style-type: none"> - unplugging - de-soldering - lubricating - freeing off corroded components - using a hydraulic press - using specialist tools - filing and dressing <p>3.2 remove components from typical plant and equipment conforming to given level of responsibility and relevant to the occupational area within maintenance workshops, and on sites and/or client's premises</p> <p>3.3 describe the types of component removal methods relevant to plant and equipment used in the occupational area</p> <p>3.4 take suitable precautions to prevent damage to components, tools and equipment during removal</p> <p>3.5 describe ways of protecting tools and equipment when removing components from plant and equipment, how to keep components clean and protected and how to prevent damage to seals etc.</p>			

