

-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION

GENERAL INFORMATION

-Module Number-	2211043	-Session-1993-94
-Superclass-	WB	
-Title-	PREPARING COMPONENTS (CLEANING AND APPLYING PROTECTIVE COATINGS) (x¹/₂)	

-DESCRIPTION-

GENERAL COMPETENCE FOR UNIT: Following instructions and adopting safe working practices in the preparation, cleaning and application of protective coatings to materials and surfaces of machinery, equipment, parts and components and contributing to the commissioning of machinery, equipment, parts and components.

OUTCOMES (Elements of Competence)

1. interpret technical information for preparing components;
2. select materials and substances for preparation;
3. provide surface finishing of components;
4. apply materials and substances;
5. contribute to the commissioning of plant and equipment.

This unit incorporates the standards of the CITB Lead Body.

CREDIT VALUE: 0.5 NC Credit

ACCESS STATEMENT: This module forms part of the level I SVQ in Plant Occupations, details of which are given in the Support Notes, under Progression. There is no access statement for this module but it is designed to complement the other units in the SVQ and candidates would normally be expected to be receiving complementary industrial experience in a related field.

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NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION**STATEMENT OF STANDARDS****UNIT NUMBER:** 2211043**UNIT TITLE:** PREPARING COMPONENTS (CLEANING AND APPLYING PROTECTIVE COATINGS)

Acceptable performance in this unit will be the satisfactory achievement of the standards set out in this part of the specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME (ELEMENT OF COMPETENCE)

1. INTERPRET TECHNICAL INFORMATION FOR PREPARING COMPONENTS

PERFORMANCE CRITERIA

- (a) Accurate and relevant selection and interpretation is made of technical information from available sources in relation to the preparation of components.
- (b) Corrective actions are implemented to establish practicable application procedures.
- (c) Instructions given to the candidate are correctly interpreted and implemented.

RANGE STATEMENT

Information sources: instruction or operator's handbooks or manuals; manufacturers' specifications; workshop manuals; manufacturers' technical information; oral or written instructions; technical drawings.

Calculation: simple multiplication; division; addition and subtraction.

Corrective actions: liaising with line manager or supervisor.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in:

- (i) taking information from:
 - lubrication maintenance charts;
 - volumes and capacities charts;
 - mix proportions;
 - types of materials and substances;
 - manufacturers' instructions;

- technical information;
- (ii) calculating from given information sources:
 - capacities, volumes, quantities and percentages.

Oral or written evidence of knowledge and understanding of:

- (i) types and purposes of information sources in the range;
- (ii) methods of reporting inaccuracies in information sources.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENT OF COMPETENCE)

2. SELECT MATERIALS AND SUBSTANCES FOR PREPARATION

PERFORMANCE CRITERIA

- (a) The selection of materials and components complies with the specification in terms of quantity, quality and types.
- (b) Corrective actions are implemented to establish utility of materials.
- (c) Instructions given to the candidate are correctly interpreted and implemented.

RANGE STATEMENT

Information sources: instruction or operator's handbooks or manuals; manufacturers' specifications; workshop manuals; abbreviations; signs and symbols; oral or written instructions.

Materials and substances: cleaning agents; solvents; water; emery cloth; glass paper; abrasive discs; protective coatings.

Corrective actions: liaison with line manager or supervisor.

Safety: personal protection and materials handling legislation; HASWA (Health and Safety at Work Act); COSHH (Control of Substances Hazardous to Health) Regulations.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in selecting materials and substances:

Oral or written evidence of knowledge and understanding of:

- (i) characteristics, uses and limitations of materials in the range;
- (ii) types and purposes of information sources;
- (iii) employer's and candidate's responsibilities under relevant statutory regulations.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENT OF COMPETENCE)**3. PROVIDE SURFACE FINISHING OF COMPONENTS****PERFORMANCE CRITERIA**

- (a) Instructions given to the candidate are correctly interpreted and implemented.
- (b) Preparation of components conforms with the specification.
- (c) The finished prepared surface conforms with the specification.
- (d) Efficient use of materials minimises waste.
- (e) The selection of tools and equipment is appropriate to the work.
- (f) Work is carried out without endangering oneself or others.
- (g) The cleanliness of the work area is maintained.
- (h) Materials and components are protected to prevent damage by adjacent activities.

RANGE STATEMENT

Information sources: manufacturers' specifications; workshop manuals; instruction or operator's handbooks or manuals; symbols and abbreviations.

Records: company records.

Machinery and equipment: static plant; wheeled plant; tracked plant; portable power tools; attachments and auxiliary equipment.

Components and assemblies: power units; transmissions; chassis; controls; frames; attachments; individual parts and components.

Tools and equipment: hand tools; specialist servicing tools; portable and static cleaning plant.

Materials and substances: cleaning agents; solvents; water; abrasive cloth; abrasive paper.

Preparation processes: cleaning; dressing; preparing.

Safety: personal protection legislation; machinery operating instructions.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in:

- (i) preparing components;
- (ii) cleaning parts, components, machines, equipment and mating surfaces using hand tools and static and portable equipment;
- (iii) storing parts and components during and after preparation:
 - protect parts and components from damage, contamination and corrosion.

Oral or written evidence of knowledge and understanding of:

- (i) types of information sources;
- (ii) cleaning processes and techniques;
- (iii) preparation processes for a range of materials;
- (iv) types of protective and preventative corrosion methods;
- (v) manual lifting techniques;
- (vi) types and use of power supply including transformer;
- (vii) operating procedures for machinery and equipment;
- (viii) employer's and candidate's responsibilities under relevant statutory regulations.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENT OF COMPETENCE)

4. APPLY MATERIALS AND SUBSTANCES

PERFORMANCE CRITERIA

- (a) Instructions given to the candidate are correctly interpreted and implemented.
- (b) Efficient use of materials minimises waste.
- (c) The selection of tools and equipment is appropriate to the work.
- (d) The cleanliness of the work area is maintained.
- (e) The finished prepared surface conforms with the specification.
- (f) Work is completed to an agreed time schedule.
- (g) The method of application produces the specified finish.
- (h) Corrective actions are implemented against problems with tools, equipment and materials.
- (i) Work is carried out without endangering oneself or others.

RANGE STATEMENT

Information sources: manufacturers' technical information; oral or written instructions.

Corrective actions: liaising with line manager or supervisor.

Tools: hand tools.

Materials and substances: lubricants; primers; undercoats; top coats.

Components: metal; wood; plastic.

Application processes: brushing; spraying.

Locations: site or workshop.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in:

- (i) applying protective coatings by brush:
 - primers;
 - undercoats;
 - top coats;
 - lubricants.

- (ii) applying protective coatings by aerosol:
 - primers;
 - undercoats;
 - top coats;
 - protective coatings;
 - lubricants.

Oral or written evidence of knowledge and understanding of:

- (i) the characteristics, uses and limitations of materials and substances within the range;
- (ii) methods of brush and spray application;
- (iii) types and purposes of information sources in the range;
- (iv) employer's and candidate's responsibilities under relevant statutory regulations.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENT OF COMPETENCE)

- 5. CONTRIBUTE TO THE COMMISSIONING OF PLANT AND EQUIPMENT**

PERFORMANCE CRITERIA

- (a) Commissioning of machinery and equipment is carried out to prescribed safe working practices and procedures.

- (b) Commissioning of machines and equipment conforms with technical specifications and construction details.
- (c) Corrective actions are implemented against deviations from commissioning specification.
- (d) Records are complete, accurate, clear and accessible.
- (e) Instructions given to the candidate are correctly interpreted and implemented.

RANGE STATEMENT

Information sources: workshop manuals; operating or instruction books.

Corrective actions: liaising with line manager or supervisor.

Records: required company forms.

Commissioning: visual checking and inspecting components, parts, machinery and equipment after cleaning and the preparation and application of protective coatings.

Machinery and equipment: small plant; static plant; wheeled plant; tracked plant; mechanical parts; components; assemblies and sub-assemblies; attachments.

Location: workshop or site.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in:

- (i) contributing to the commissioning of machinery and equipment;
- (ii) the visual inspection for cleanliness of components, parts, materials, mating surfaces, machinery and equipment;
- (iii) the visual inspection of protective coatings on materials.

Oral or written evidence of knowledge and understanding of;

- (i) visual inspection and checking procedures;
- (ii) sources and interpretations of technical information in the range;
- (iii) handling of materials;
- (iv) manual lifting techniques;
- (v) employer's and candidate's responsibilities under relevant statutory regulations.

All the performance criteria must be met and all items in the range statement covered.

ASSESSMENT RECORDS

In order to achieve this unit, candidates are required to present sufficient evidence that they have met all the performance criteria for each outcome within the range specified. Details of these requirements are given for each outcome. The assessment instruments used should follow the general guidance offered by the SQA assessment model and an integrative approach to assessment is encouraged. (See references at the end of support notes).

Accurate records should be made of assessment instruments used showing how evidence is generated for each outcome and giving marking schemes and/or checklists, etc. Records of candidates' achievements should be kept. These records will be available for external verification.

SPECIAL NEEDS

In certain cases, modified outcomes and range statements can be proposed for certification. See references at end of Support Notes.

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NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION**SUPPORT NOTES**

UNIT NUMBER	2211043
UNIT TITLE	PREPARING COMPONENTS (CLEANING AND APPLYING PROTECTIVE COATINGS)

SUPPORT NOTES: This part of the unit specification is offered as guidance. None of the sections of the support notes is mandatory.

NOTIONAL DESIGN LENGTH: SQA allocates a notional design length to a unit on the basis of time estimated for achievement of the stated standards by a candidate whose starting point is as described in the access statement. The notional design length for this unit is 20 hours. The use of notional design length for programme design and timetabling is advisory only.

PURPOSE This unit is designed to enable the candidate to develop skills and knowledge related to preparing components for use during servicing and repair to plant and equipment. It is suitable for operatives working in the construction industry or a services or installation industry related to construction.

SQA publishes summaries of NC units for easy reference, publicity purposes, centre handbooks, etc. The summary statement for this unit is as follows:

This module will help you to acquire the skills and knowledge necessary to prepare parts and components for fitting to a range of plant and equipment during servicing and repair. You will learn how to select and use materials and substances and contribute to the commissioning of plant and equipment. On completion of the module you should have a good working knowledge of the relevant current safety and materials handling regulations.

CONTENT/CONTEXT The candidate successfully completing this module will require underpinning knowledge and skills relating to the interpretation of technical information and the selection and application of materials and substances relevant to the preparation of components for use during servicing and repair of a range of plant and equipment.

The unit would be offered to candidates from the construction and related services industries. The skills are transferable within different working environments but the unit is primarily aimed at candidates whose normal place of work would be a site or similar environment.

The range statement is applicable to all areas of construction and other related or similarly structured industries. The competences and underpinning knowledge gained in successfully completing this unit would be transferable across a range of disciplines within the built environment.

The unit deals with preparing components and is complemented by units dealing with related aspects of work in construction plant occupations.

It should be delivered as part of a structured programme of training and orientated to the context of the candidate's work and area of responsibility.

APPROACHES TO GENERATING EVIDENCE The achievement of the underpinning knowledge required for this unit would be assisted by the use of slides and videos, and hands-on experience.

Tutors/trainers should demonstrate practical elements step by step until the candidate feels confident enough to attempt them on his/her own, and the safety factors should be thoroughly emphasised.

Supervisors and employers could also play an important part in assisting candidates to generate evidence.

ASSESSMENT PROCEDURES Candidates will be able to provide evidence of performance using a variety of methods. These will include:

- Performance at work (recorded in Candidate's Assessment and Evidence Record or other methods).
- Performance in training (recorded in Candidate's Assessment and Evidence Record or other methods).
- Simulated exercises (skills/progress test results).
- Past achievement/experiences e.g. letters of endorsement; past certificates.

Evidence gathering from the workplace will be the preferred method; however there may be situations where this is inappropriate or the evidence is insufficient. Supplementary evidence will also be required to demonstrate the underpinning knowledge related to the competences in the unit.

For detailed guidance on assessment, reference should be made to the publications listed at the end of the Support Notes and to the Assessment Guidance Notes available for the delivery of the Scottish Vocational Qualification of which this module is a component.

PROGRESSION This unit forms part of the level I SVQ in Plant Occupations.

Each module is a separate unit and the modules are not necessarily taken in a prescribed order, although there is a logical sequence to the acquisition of the skills and knowledge concerned.

To gain the award, the candidate must successfully complete all of the following modules:

2211013	Producing Components from Procured Materials (Powered and Non-powered Tools) (x 2)
2211023	Loading and Unloading Materials and Components (Plant Occupations) (x 0.5)
2211033	Servicing and Repairing Plant and Equipment (Lubricants and Fluids)
2211043	Preparing Components (Cleaning and Applying Protective Coatings) (x 0.5)
2211053	Operating Plant and Equipment (Forward Tipping Dumper) (x 2)
4120332	Contributing to Health and Safety in the Workplace (x 0.5).
4120342	Contributing to the Efficiency of the Workplace (x 0.5).
4120282	Working with People in Construction and Related Services (x 0.5)

Progression from the level I SVQ will normally be to the level II SVQ in the appropriate discipline (Plant Maintenance or Plant Occupations).

RECOGNITION Many SQA NC units are recognised for entry/recruitment purposes. For up-to-date information see the SQA guide 'Recognised and Recommended Groupings'.

REFERENCES

1. Guidelines for Module Writers.
2. SQA's National Standards for Assessment and Verification.
3. For a fuller discussion on assessment issues, please refer to SQA's Guide to Assessment.
4. Procedures for special needs statements are set out in SQA's guide 'Students with Special Needs'.

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