-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number-	**2210901** **-Session-1991-92**
-Superclass-	**XS**
-Title-	**VEHICLE BODY REPAIR: MATERIALS, PROCESSES, TOOLS AND PROCEDURES**

-DESCRIPTION-

Purpose

This module is designed to introduce the student to tools, equipment and procedures related to the repair of accident damaged motor vehicles and to develop the skills and knowledge required to use specified hand tools and equipment in a range of bodywork repair processes.

It is part of a series of body repair modules which can be taken separately or may be joined to give an integrated programme covering the range of skills required by a light or heavy vehicle body repairer.

The standards contained in the module cover the work and Transkill Assessments for RTITB Skills Tests BR001 Foundation Module Vehicle Body Repairer and BR002 Foundation Module Vehicle Repairer Incorporating Commercial Vehicles.

Preferred Entry Level

No formal entry requirements.

Outcomes

The student should:

1. identify the materials used in vehicle construction;
2. identify tools and equipment related to vehicle body repair processes;
3. use specified hand tools and equipment in a range of vehicle body repair processes;
4. state safe working practices for specified materials, tools and equipment.

Assessment Procedures

Acceptable performance in this module will be satisfactory achievement of all the Performance Criteria specified for each Outcome.

The following abbreviations are used below:

PC Performance Criteria
IA Instrument of Assessment

Note: The Outcomes and PCs are mandatory and cannot be altered. The IA may be altered by arrangement with SQA. (Where a range of performance is indicated, this should be regarded as an extension of the PCs and is therefore mandatory.)

OUTCOME 1 **IDENTIFY THE MATERIALS USED IN VEHICLE CONSTRUCTION**

PCs

(a) Visual identification, with the aid of a file, of ferrous metals as iron or steel is correct in terms of name, properties and uses on vehicle bodywork.
(b) Visual identification, with the aid of a file, of non-ferrous metals as copper, brass, aluminium, zinc or lead/tin is correct in terms of name, properties and uses on vehicle bodywork.
(c) Visual identification of non-metallic vehicle construction materials such as timbers, plastics, glass reinforced plastic (GRP), glass, rubber or upholstery trimming is correct in terms of name, properties and uses on vehicle bodywork.
(d) Visual identification of body repair materials such as sealing compounds, fillers, or paints is correct in terms of name, properties and uses in the repair of vehicle bodywork.

IA Restricted Response Questions

The student will be presented with an exercise consisting of restricted response questions to test knowledge of materials used in vehicle construction and the repair of vehicle bodywork.

The exercise will take the form of 24 specimens of material, 6 from each of PC (a) to (d) and a structured answer paper.

For each specimen the student should state:

(i) the name of each material;
(ii) 1 example of its use in vehicle bodywork;
(iii) the property which makes the material suitable for the use stated.

In identifying the materials, the student must identify the following groupings:

- Ferrous metals

  cast
  high, medium, and low carbon steels
  stainless steel

- Non ferrous metals

  copper
  brass
  aluminium and its alloys
  lead, solder alloys
  zinc, galvanising

- Non metallic materials

  timbers
  plastics - thermo setting, non thermo setting
  glass reinforced plastic (GRP)
  glazings - toughened and laminated
  rubbers - natural, synthetic, foam
  trimmings - leather, cloth, plastic, moquette
  fillers - setting and drying
  paints and solvents
  sealing compounds

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student producing a structured answer paper with at least 20 correct answers in total, including at least 4 correct, three part answers for the specimens relating to each Performance Criterion.

OUTCOME 2 **IDENTIFY TOOLS AND EQUIPMENT RELATED TO VEHICLE BODY REPAIR PROCESSES**

PCs

(a) The visual identification of manual hand tools is correct in terms of name and purpose.
(b) The visual identification of power tools is correct in terms of name and purpose.
(c) The visual identification of workshop equipment is correct in terms of name and purpose.
(d) The visual identification of body repair processes is correct in terms of title and purpose.

IA Objective Items

The student will be presented with an exercise consisting of objective items to test knowledge relating to the identification of body repair tools, equipment and processes.

The test should take the form of a matching exercise consisting of a total of 20 items, 5 related to each Performance Criterion from the following list:

PC (a) dollies, hammers, spoons, mallets, beating files;
snips - curved and straight;
hacksaws;
hand files;
chisels;
spanners, sockets, torque wrenches;
hole punches;
screwdrivers.

PC (b) bench and hand grinders;
shears and guillotines;
pillar, bench and hand drills;
fixed and portable saws;
cutters and nibblers;
sanders;
vacuum cleaners.

PC (c) compressed air supply system;
fume extraction systems;
electric supply systems - 110, 240 and 440 volt;
body dozers,
body jigs;
vehicle lifts and pits,
body jacks;
vehicle alignment equipment;
pressure washers;
steam cleaners;
folding machines;
wheeling machines;
jacks and axle stands.

PC (d) stripping exterior trim;
stripping interior trim;
electrical work;
mechanical work;
full panel replacements;
part panel replacements;
body dozing;
body jigging;
chassis/suspension alignment;
full body shell replacement;
preparation for painting;
valeting and finishing.

OUTCOME 3 **USE HAND TOOLS AND EQUIPMENT IN A RANGE OF SPECIFIED VEHICLE BODY REPAIR PROCESSES**

PCs

(a) The use of hand tools is appropriate for the specified task in terms of safety, efficiency of time and prevention of damage.
(b) The use of fixed and portable power tools is appropriate for the specified task in terms of safety, efficiency of time and prevention of damage.
(c) The use of workshop equipment is appropriate for the specified task in terms of safety, efficiency of time and prevention of damage.

IA Practical Exercise

The student will be presented with an exercise consisting of a series of practical tasks to test the application of skills and knowledge used in the selection and use of hand tools, power tools and workshop equipment for a range of specified tasks.

The exercise will consist of a number of specified tasks which require the student to:

(i) remove and replace 1 vehicle mechanical component using a range of hand tools;
(ii) remove and replace 1 vehicle body component using a range of hand tools;
(iii) remove a minor dent from a panel using a range panel repair tools;
(iv) cut a panel to a specified pattern using hand and power cutting tools;
(v) dress and clean two panel edges using hand files, power grinders and sanders;
(vi) carry out safety inspections on 2 units of portable electric equipment and 2 items of portable pneumatic equipment;
(vii) carry out routine maintenance on 1 unit of portable electrical equipment and 1 unit of portable pneumatic equipment;
(viii) place a vehicle securely on 4 axle stands;
(ix) clean a specified area of a vehicle using a pressure washer or steam cleaner.
(x) clean a vehicle in preparation for presentation to the customer.

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student satisfactorily completing 1 example of each of the 10 tasks listed above.

OUTCOME 4 **STATE SAFE WORKING PRACTICES FOR SPECIFIED MATERIALS, TOOLS AND EQUIPMENT**

PCs

(a) The identification of safe working practices to be followed when using hand tools is correct in terms of personal safety.

(b) The identification of safe working practices to be followed when using electric and pneumatic power tools is in accordance with the current recommendations and regulations for a specified power tool.

(c) The identification of safe working practices to be followed when using hazardous materials is in accordance with the current recommendations and regulations for specified material.

(d) The identification of the emergency procedures to be followed in the event of fire is in accordance with the current recommendations and regulations for the premises being occupied.

IA Objective Items

The student will be presented with an exercise consisting of objective items to test the recall of knowledge related to safe working practices associated with vehicle body repair work.

The test will take the form of a short answer question paper containing 24 items allocated as follows:

(i)	hand tools	4
(ii)	electric power tools	4
(iii)	pneumatic power tools	4
(iv)	storage and handling	4
(v)	disposal of wastes	4
(vi)	fire hazards	4

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student producing 18 correct responses, with not less than 3 correct responses to each topic (i) to (vi) above.

The following sections of the descriptor are offered as guidance.
They are not mandatory.

CONTENT/CONTEXT

Corresponding to Outcomes 1-4:

1. The methods used to identify materials should be confined to visual techniques assisted by manufacturers' markings where these may exist, as on containers, glass markings etc.

2. The identification of tools and equipment should be confined to those tools commonly used in vehicle body repair and should include the maintenance required for safe use of tools.

3. The requirements of all current and forthcoming regulations on safety must be included with particular reference to the Control of Substance Hazardous to Health Regulations and the Control of Pollution Regulations.

SUGGESTED LEARNING AND TEACHING APPROACHES

The practical content of this module should be taught and assessed in a workshop environment and may be integrated with a series of modules covering a range of work appropriate to vehicle body repair.

The requirements on any Industry Body such as the RTITB Transkill scheme should be monitored for inclusion in the assessment.

09/02/98 JH/AM