

**-SQA-SCOTTISH QUALIFICATIONS AUTHORITY**

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**NATIONAL CERTIFICATE MODULE DESCRIPTOR**

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**-Module Number-** 0094377 **-Session-1989-90**  
**-Superclass-** XS

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**-Title-** **VEHICLE COMPONENT: SEALING DEVICES (x<sup>1</sup>/<sub>2</sub>)**

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**-DESCRIPTION-**

Purpose

This module introduces the student to the range of sealing devices used in vehicle components and develops the necessary skills connected with their use.

It is aimed at those intending to pursue a career in the motor vehicle repair industry. The module is also designed to complement RTITB module MV014F Light and Heavy Vehicle Repair and Maintenance Skills and will provide the student with the necessary knowledge and skills to prepare for the RTITB Skills Test. It should be noted however that adequate supporting industrial experience will also be necessary.

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Preferred  
Entry Level

No formal entry requirements

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Learning  
Outcomes

The student should:

1. identify a range of sealing devices used in motor vehicles;
  2. manufacture sealing devices from given materials;
  3. fit appropriate sealing devices for a range of applications;
  4. identify sealing compounds for a range of applications.
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Content/  
Context

Safety regulations, safe working practices and procedures should be observed at all times.

As many sealing compounds contain toxic or hazardous substances, safe handling and storing procedures must be emphasised to the students.

Corresponding to Learning Outcomes 1-4:

This module should be taught in the context most suited to the student's particular needs.

1. Content should be limited to common types of seals found in motor vehicles. Students should be aware of material choices in seal manufacture i.e. oil resistance, heat resistance, etc. Seal type applications should be kept simple e.g. non-moving parts and rotating shafts.
2. The manufacture of a paper gasket should be limited to examples such as thermostat housing, gearbox cover etc.
3. Students should be made aware of the need to check the condition and truth of mating surfaces and surface preparation procedures. The need to protect seal lips during fitting and pre-lubrication of certain types should be emphasised.
4. Due to the high number and variety of compounds available content should be limited to the most common types. The students, because of financial and practical difficulties are not required to use the compounds, but, should be able to inspect application charts, instructions for use and handling recommendations for the most common types.

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Suggested  
Learning and  
Teaching  
Outcomes

This module should be taught in a workshop environment. The student should be encouraged to develop the practical skills involved in the production of a paper gasket using a ball pein hammer and hollow punches.

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Assessment  
Procedures

Acceptable performance in the module will be satisfactory achievement of all the performance criteria specified for each Learning Outcome.

The following abbreviations are used below:

LO Learning Outcome  
IA Instrument of Assessment  
PC Performance Criteria

LO1 IDENTIFY A RANGE OF SEALING DEVICES USED IN MOTOR VEHICLES

PC The student:

- (a) identifies and names sealing devices;
- (b) identifies materials commonly used in the manufacture of seals for given applications;
- (c) states the reasons for using given types of sealing devices.

IA Short Answer Questions

The student will be presented with short answer questions to test the recall of knowledge related to common sealing devices.

The test will consist of nine (9) questions allocated as follows:

- |                     |   |
|---------------------|---|
| (a) sealing devices | 3 |
| (b) materials       | 3 |
| (c) application     | 3 |

Satisfactory achievement of the Learning Outcome will be based on all performance criteria being met. This will be demonstrated by the student achieving 2 out of 3 correct responses in sections (a), (b) and (c) above.

LO2 MANUFACTURE SEALING DEVICES FROM GIVEN MATERIALS

PC The student:

- (a) selects an appropriate process to produce a seal;
- (b) marks out material prior to cutting;
- (c) uses appropriate tools to cut out seals;
- (d) produce seals accurately to match given component faces.
- (e) follows safe working practices relevant to the task.

IA Practical Exercise

The student will be presented with a practical exercise to test the application of knowledge and skills involved in the manufacturing of sealing devices from given material.

The exercise should involve the manufacture of a paper gasket and an 'o' ring.

Satisfactory achievement of the Learning Outcome will be based on all performance criteria being met.

LO3 FIT APPROPRIATE SEALING DEVICES FOR A RANGE OF APPLICATIONS

PC The student:

- (a) checks condition of mating surfaces;
- (b) carries out correct surface preparation;
- (c) fits sealing devices using manufacturers recommended procedures;
- (d) follows safe working procedures relevant to the task

IA Practical Exercise

The student will be presented with a practical exercise to test the application of knowledge and skills involved in fitting appropriate sealing devices for a range of applications.

The exercise will involve the satisfactory fitting of two types of seals from:

- (i) paper gasket;
- (ii) 'o' ring;
- (iii) radial lip seal.

Satisfactory achievement of the Learning Outcome will be based on all performance criteria being met.

LO4 IDENTIFY SEALING COMPOUNDS FOR A RANGE OF APPLICATIONS

PC The student:

- (a) names the main types of sealing compounds;
- (b) states typical applications of each type of sealing compound;
- (c) states procedures for applying given compounds;
- (d) states the limitations on the use of sealing compounds.

IA Short Answer Questions

The student will be presented with short answer questions to test the recall of knowledge relating to applications of sealing compounds.

The test will consist of 12 short answer questions allocated as follows:

- (a) types 3
- (b) application 3
- (c) procedures 3
- (d) limitation 3

Satisfactory achievement of the Learning Outcomes will be based on all performance criteria being met. This will be demonstrated by the student producing 2 correct responses to each of (a), (b), (c) and (d) above.

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