

-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
24 Douglas Street
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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- 2210360
-Superclass- XS

-Session-1990-91

**-Title- WHEELS AND TYRES: APPLICATION, CONDITION
ASSESSMENT AND FAULT FINDING (x¹/₂)**

-DESCRIPTION-

Purpose This module is designed to develop the skills and knowledge required to assess the condition of and locate faults in wheel/tyre assemblies.

It is aimed at those intending to pursue a career in the motor vehicle repair industry. The module is also designed to compliment RTITB module LV206C Wheels and Tyres: Application, Condition Assessment and Fault Finding 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.

Preferred Entry Level Module 2210350 Wheels and Tyres: Tyre Fitting and Repairs

Outcomes The student should:

1. use current publications to obtain technical and legal information relating to tyres;
2. recognise faults on wheels and tyres and the symptoms related to each fault;
3. inspect and report on condition of wheels and tyres;
4. determine the balance of a wheel and tyre assembly.

Assessment Procedures Acceptable performance in the 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 USE CURRENT PUBLICATIONS TO OBTAIN TECHNICAL AND LEGAL INFORMATION RELATING TO TYRES

- PCs
- (a) The conditions which render a tyre unservicable are correctly stated.
 - (b) The factors which affect tyre compatability are stated.
 - (c) The considerations when selecting tyres for given applications are stated.
 - (d) Tyre sidewall markings are correctly interpreted.

IA Structured Questions

The student will be presented with 15 structured questions to test the recall of technical and legal knowledge related to wheel/tyre assemblies.

The questions should be allocated as follows:

- (i) tyre unserviceability - 4 questions
- (ii) tyre compatibility - 3 questions
- (iii) tyre selection - 3 questions
- (iv) tyre sidewall markings - 5 questions

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student producing 3 correct responses for performance criteria (a), 2 correct responses for performance criteria (b) and (c), and 2 correct responses for performance criteria (d). A suitable checklist may be used to record student performance.

OUTCOME 2 RECOGNISE FAULTS ON WHEELS AND TYRES AND THE SYMPTOMS RELATED TO EACH FAULT

- PCs
- (a) Causes of abnormal tyre wear are stated.
 - (b) Causes of vibration related to wheels and tyres are stated.
 - (c) Causes of abnormal noise are stated.
 - (d) Causes of inadequate roadholding are stated.

IA Structured Questions

The student will be presented with 12 structured questions to test the recall of knowledge relating to fault recognition on wheel/tyre assemblies.

The questions should be allocated as follows:

- | | | |
|-------|-------------------------|---------------|
| (i) | abnormal tyre wear | - 4 questions |
| (ii) | related vibration | - 3 questions |
| (iii) | abnormal noise | - 2 questions |
| (iv) | inadequate road holding | - 3 questions |

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student producing 3 correct responses for performance criteria (a), 2 correct responses for performance criteria (b) and (d), and 2 correct responses for performance criteria (c).

OUTCOME 3**INSPECT AND REPORT ON CONDITION OF WHEELS AND TYRES****PCs**

- (a) Tyre treads are examined for abnormal wear or damage.
- (b) Tyre sidewalls are examined for abnormal wear or damage.
- (c) Wheels are examined for abnormal wear or damage.
- (d) Tubes and valves are examined for defects and damage.

IA Practical exercise

The student will be presented with a series of practical tests involving the inspection and report on wheels and tyres. Faults should include the following:-

- (i) incorrect camber angle;
- (ii) incorrect wheel alignment;
- (iii) wheel damage;
- (iv) incorrect wheel balance;
- (v) cuts in excess of legal limits;
- (vi) bulges/separation in tyre construction;
- (vii) incorrect tyre pressures;
- (viii) wheel corrosion.

Satisfactory achievement will be an accurate report on all the faults inspected. A suitable checklist may be used to record student performance.

OUTCOME 4**DETERMINE THE BALANCE OF A WHEEL AND TYRE ASSEMBLY**

PCs

- (a) Wheel/tyre assembly is inspected for defects.
- (b) Tyre pressures are checked and adjusted.
- (c) Recommended safety procedures are followed.
- (d) Equipment manufacturers' recommended procedures are followed.

IA Practical Exercise

The student will be presented with a practical exercise in a workshop environment to test the recall of knowledge and application of skills relating to static and dynamic wheel balance in accordance with recommended procedures. These procedures may be found in a variety of technical publications including manufacturer's workshop manuals and service bulletins.

The student will be presented with 2 wheel and tyre assemblies, one of which will be correctly balanced. The student may undertake either of the following tasks.

- (i) static and dynamic balance on the vehicle;
- (ii) static and dynamic balance off the vehicle.

Satisfactory achievement of the Outcome will be based on all Performance Criteria being met. This will be demonstrated by the student correctly determining the state of balance in each wheel and tyre assembly for either task (i) or (ii). A suitable checklist may be used to record student performance.

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

CONTENT/CONTEXT

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

Corresponding to Outcomes 1-4:

This module should be taught in the context most suited to the students particular needs.

This module is intended to give students an understanding of the reasons for assessing the condition and diagnosing defects in wheel and tyre assemblies, as a means of promoting vehicle safety, prolonging operational life and maintaining to original specification.

Students should be made aware of the general trends in automotive technology and reminded that any particular manufacturer may utilise specialised equipment which is not common throughout the whole industry.

SUGGESTED LEARNING AND TEACHING APPROACHES

This module should be undertaken in a service workshop with an adequate range of vehicle assemblies to be covered. Students should have full access to relevant service publications for the satisfactory performance of the tasks.

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