-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0094383** **-Session-1989-90**
-Superclass- **XS**

-Title- **STEERING SYSTEMS (UNASSISTED): CONDITION ASSESSMENT AND FAULT DIAGNOSIS ($x^1/_2$)**

-DESCRIPTION-

Purpose

This module is designed to develop the skills and knowledge required to diagnose faults in unassisted steering systems and to assess accurately the condition of related components.

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 LV208C Steering Systems (Unassisted): Condition Assessment and Fault Diagnosis 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

94382 Steering Systems (Unassisted): Removal, Replacement and Adjustment of Components

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Learning Outcomes

The student should:

1. recognise steering and front suspension system faults and the symptoms related to each fault;

2. inspect and report on steering and front suspension systems;

3. use instruments to measure and report on component condition;

4. adjust steering components.

Content/ Context

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

Corresponding to Learning 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 vehicle steering systems, as a means of promoting vehicle safety, prolonging operational life and maintaining to original specification.

Suggested Learning and Teaching Approaches

This module should be undertaken in a service workshop with an adequate range of vehicles equipped with the components to be covered. Students should have full access to relevant service publications, special tools and test equipment for the satisfactory performance of the tasks.

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

RECOGNISE STEERING AND FRONT SUSPENSION SYSTEM FAULTS AND THE SYMPTOMS RELATED TO EACH FAULT

PC The student:

(a) identifies common steering and front suspension system faults;
(b) identifies effects of steering and front suspension system faults;
(c) identifies causes of steering and front suspension system faults.

IA Structured Question

The student will be presented with a structured question to test the understanding of knowledge relating to the recognition of steering system faults.

The test will consist of 1 structured question relating to the faults in a steering system. The question will have 3 parts allocated as follows:

(a)	identification	5 faults
(b)	effects	5 faults
(c)	causes	5 faults

The following common faults should be covered:

(I) heavy steering
(ii) pulling
(iii) inadequate self centering
(iv) misalignment of steering
(v) wandering
(vi) abnormal tyre wear
(vii) abnormal noises

Satisfactory achievement of the learning outcome will be based on all performance criteria being met. This will be demonstrated by the student producing at least 4 correct responses for each of 'a', 'b' and 'c' above.

LO2 INSPECT AND REPORT ON STEERING AND FRONT SUSPENSION SYSTEMS

PC The student:

(a) examines and reports on condition of components;
(b) follows safe working practices relevant to the task;
(c) uses vehicle protection appropriate to the task.

IA Practical Exercise

The student will be presented with a series of practical exercises in a workshop environment to test the application of knowledge and system components skills relating to the inspection of steering and suspension system components in accordance with recommended procedures. These procedures may be found in a variety of technical publications including manufacturers' workshop manuals and service bulletins. Each student should undertake all the tasks from the following list:

(I) track rod ends and ball joints
(ii) steering column bushes, bearings and couplings
(iii) king/swivel pins and bushes
(iv) track control idler arm bushes
(v) anti-rollbar bushes and mountings
(vi) dampers
(vii) suspension arm mountings
(viii) bump stops
(ix) hub bearings, wheels and tyres

Satisfactory achievement of the learning outcome will be based on all performance criteria being met. This will be demonstrated by the student producing a report on the serviceability of the systems and components inspected.

LO3 USE INSTRUMENTS TO MEASURE AND REPORT ON COMPONENT CONDITION

PC The student:

(a) uses literature to obtain recommended settings;
(b) measures and reports on steering and suspension components;
(c) follows all safe working practice relevant to the task;
(d) uses vehicle protection appropriate to the task.

IA Practical Exercise

The student will be presented with a series of practical exercises in a workshop environment to test the application of knowledge and skills relating to the measurement and reporting on steering and suspension system components in accordance with recommended procedures. These procedures may be found in a variety of technical publications including manufacturers' workshop manuals and service bulletins. Each student should undertake all the tasks from the following list:

(I) tyre pressures
(ii) hub free play
(iii) equal lengths of track rods
(iv) wheel alignment
(v) toe-out on turns
(vi) camber
(vii) castor
(viii) KPI

Satisfactory achievement of the learning outcome will be based on all performance criteria being met. This will be demonstrated by the student producing an accurate recording of manufacturers' data and all readings obtained and report on the serviceability of the items measured.

LO4 ADJUST STEERING COMPONENTS

PC The student:

(a) uses literature to obtain recommended settings;
(b) checks settings on steering box and idler;
(c) adjusts steering box and idler to recommended settings and report;
(d) follows all safe working practices;
(e) uses vehicle protection appropriate to the task.

IA Practical Exercise

The student will be presented with a series of practical exercises in a workshop environment to test the application knowledge and skills relating to adjustment of steering components in accordance with recommended procedures. These procedures may be found in a variety of technical publications including manufacturers' workshop manuals and service bulletins. Each student should undertake all the tasks from the following list:

(I) determine settings;
(ii) adjust steering box
(iii) adjust steering idler
(iv) report

Satisfactory achievement of the learning outcome will be based on all performance criteria being met. This will be demonstrated by the student obtaining settings, checking settings, completing adjustments to within tolerances and reporting on actions taken.
