-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0094398** **-Session-1989-90**
-Superclass- **XS**

-Title- **SPARK IGNITIONS (BREAKERLESS SYSTEM): REMOVAL REPLACEMENT AND ADJUSTMENT OF COMPONENTS**

-DESCRIPTION-

Purpose

This module is designed to develop the necessary skills and knowledge required to carry out removal, replacement and adjustment of Spark Ignition (Breakerless Systems). 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 LV116B Spark Ignition (Breakerless System): Removal, Replacement and Adjustment of Components 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

Modules numbered 94370 through 94378 inclusive

Learning Outcomes

The student should:

1. identify ignition system components by name, function and location;
2. outline the operation of the ignition system;
3. remove and replace ignition system components;
4. inspect and service ignition system 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 servicing of vehicle spark ignition 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 and 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 IDENTIFY IGNITION SYSTEM COMPONENTS BY NAME, FUNCTION AND LOCATION

PC The student:

(a) names the components of the ignition system;
(b) states the function and location of ignition system components.

IA Objective Test

The student will be presented with an objective test to test the recall of knowledge relating to the identification of ignition system components.

The test could take the form of a matching exercise or short answer questions.

The test will consist of the identification by (a) name, (b) location and (c) function of 5 main ignition system components from the following:

(I) distributor
(ii) coil (iii)
(iii) cap and leads
(iv) vacuum advance
(v) mechanical advance
(vi) amplifier module/pulse generator.

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 to each of (a), (b) and (c) above.

LO2 OUTLINE THE OPERATION OF THE IGNITION SYSTEM

PC The student:

(a) states the purposes of an ignition system;
(b) outlines the electrical principles of an ignition system;
(c) outlines the operation of automatic advance and retard mechanisms.

IA Objective Test

The student will be presented with an objective test to test the recall of knowledge relating to the operation of an ignition system.

The test could take the form of short answer questions.

The test will consist of 10 items allocated as follows:

(a)	purpose of system	-2
(b)	outline of principles	-4
(c)	outline of advance/retard operation	-4

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 1 correct response for 'a', 3 correct responses for each of 'b' and 'c' above.

LO3 REMOVE AND REPLACE IGNITION SYSTEM COMPONENTS

PC The student:

(a) follows recommended procedures outlined in the technical data for carrying out each task;
(b) follows safe working practices relevant to the task;
(c) uses vehicle protection as appropriate to the task;
(d) uses tools 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 removal and replacement of ignition 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:.

removal and replacement of:

distributor,
coil,
amplifier module/pulse generator,
distributor cap,
ignition firing pick-up units,
vacuum unit,
distributor weights and springs,
carbon brush,
HT leads,
vacuum pipe and hoses.

Satisfactory achievement of the Learning outcome will be based on all performance criteria being met, for all tasks. A suitable checklist may be used to record student performance.

LO4 INSPECT AND SERVICE IGNITION SYSTEM COMPONENTS

PC The student:

(a) follows recommended procedures outlined in technical data for carrying out each task;
(b) follows all safe working practices relevant to the task;
(c) uses vehicle protection appropriate to the task;
(d) uses tools 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 inspection and servicing of ignition 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:

Inspect/test and service if required:

battery coil reluctor/pulse generator/air gap distributor cap spark plugs mechanical advance/retard vacuum advance/retard high tension leads amplifier pulse generator/module connections ignition timing

Satisfactory achievement of the Learning Outcome will be based on all performance criteria being met for all tasks. A suitable checklist may be used to record student performance.
