Occupational Profile: *Motor Vehicle Mechanic*

A competent Motor Vehicle Mechanic should be able to demonstrate the following skills and competences:

1. Routine Servicing and repair of Light and Heavy Vehicles, under supervision, as per manufacturers' recommended schedules.

2. Undertakes part repair work of a non-routine nature following unscheduled stoppages arising out of accidents or otherwise.

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Investing in your future

The candidate applying to be trade tested for the Certificate of Competence should be in possession of the majority of the following knowledge, competencies & skills:

Screw Drivers
The handling and the use of the following:
Flat blade
Philips
Posidrive
Torx

Common Tools for Measuring
The handling and the use of the following:
Vernier Calliper
Micrometer
Feeler gauges
Clock gauge

Hand Cutting Tools
The handling and the use of the following:
Files
Hacksaws
Cold chisels drills
Taps
Dies
Identifying and application of metric and unified screw threads
Identifying and application of screw thread fasteners used in automobiles

Welding Tools
The handling and the use of the following:
Electric and gas Welding

Machine Tools
The handling and the use of the following:
Bench or Pillar type drilling machine
Off-Hand grinder

Soldering
The handling and the use of the following:
Soldering iron

Brazing
The handling and the use of the following:
Brazing Torch

Screw Drivers
The handling and the use of the following:
Flat blade
Philips
Posidrive
Torx

Metric and AF Wrenches
The handling and the use of the following:
Open jaw
Ring
Hexagonal
Bi-hexagonal
Torx
Torque control wrenches and sockets
Replacing a timing belt on single and twin overhead camshaft engines
Re-timing a conventional ignition distributor, sorting out and re-connecting high tension leads.
Re-timing a distributor type fuel injection pump
Re-timing an in-line type fuel injection pump including the use of a stroboscopic timing light

Removing and replacing a cylinder head
Dismantling and assembling valves
Re-sitting valve clearances, determining shim thicknesses, inspecting and testing hydraulic tappets
Selecting spark plugs on the basis of heat range using charts/manuals
Removing/dismantling, examining and assembling a plate clutch
Dismantling, examining and assembling a manual gearbox
Servicing and overhauling brakes

Dismantling, Inspecting, Replacement of parts, Assembling & Testing:
Engines (spark and compression ignition types)
Lubrication systems
Ignition systems
Clutches and torque converters
Gearboxes, manual and automatic
Final drives and differential
Universal joints
Braking systems and components
Suspension, steering systems and components
Electrical & Electronic systems & components
Ensuring surroundings are clean and 100% safe to work in
Raising vehicles and having it supported with maximum security
Checking fluid levels, tyre pressures and effectiveness of locking devices on nuts and bolds
Simple first line of preventive maintenance
Applying manufacturer's instructions regarding the specification of consumables
Replacing parts and materials correctly using the right tools and with due regard for safety and avoidance of damage to related parts
Awareness of the risks involved concerning air bags

ASSESSMENT CRITERIA

Motor Vehicle Mechanic

1. Introduction

The following is a detailed description of the assessment criteria to be adopted by the Trade Testing Board (TTB) to reach a final decision on the award of the Certificate of Competence.

2. Trade Test

The trade test is to be made up of the following components:

1. The Written
2. The Practical
3. The Interview

The Board has agreed on the sequence of the test and the markings allocated to each specific component as indicated below:

Component	Mark	Pass Mark
Written	100	50%
Interview	100	50%
Practical	100	50%

The Written Component

The Board has agreed that candidates will sit for the written test which has duration of 2 hours.
This session will cover the following sections:

A: This paper is a multiple choice type on the layout, construction, function and operation of:

- The four and two stroke cycles of operations of internal combustion engines of small and medium power inputs
- Fuel injection systems: petrol and diesel (including common rail types)
- Electronic ignition systems
- Engine management
- Lubrication systems
- Cooling systems
- Transmission systems
- Brakes
- Steering
- Suspension
- Lighting, signalling, starting, generating and storage systems

B: In this section, questions are based on standard mathematical processes to calculate the following:

- Areas and volumes relating to circular objects, swept volumes engine capacities, tanks
- Compression ratios and volumes of liquids to be added to mixtures and dilutions such as radiator coolants and petrol Fuels for two-stroke engines
- Distance, velocity and acceleration; Newton's laws of motion
- Engineering Drawing, Systems of projection: first angle; third angle; oblique, isometric and free hand drawings

The Interview Component

All candidates will be called for an interview. The duration of the interview will be from 20 to 30 minutes.

The interview questions will cover the topics as listed in the Theory and Practical components in addition to the following:

- **Health & Safety**
- **Work Experience**
- **Tools & Machinery**

The Practical Component

Candidates will be given a particular exercise which will have a duration of 2 hours.
This Assessment component is considered as based on the practical experience gained by the Candidates at the place of work.

Candidates are expected to demonstrate their ability in the following tasks.

- Replacing a timing belt on single and twin overhead camshaft engines
- Re-timing a conventional ignition distributor, sorting out and re-connecting high tension leads
- Re-timing a distributor type fuel injection pump
- Re-timing an in-line type fuel injection pump including the use of a stroboscopic timing light
- Dismantling and assembling valves
- Re-setting valve clearances, determining shim thicknesses, inspecting and testing hydraulic tappets
- Removal/dismantling, examining and assembling a plate clutch
- Assembling wheel bearings and adjusting pre-loads
- Overhauling suspension system and components