MODULE CONTENT

| Unit of Competency | **VALIDATE VEHICLE SPECIFICATION** |
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| Module Title | **VALIDATING VEHICLE SPECIFICATION** |
| Module Descriptor | This unit covers the knowledge, skills and attitude to check body type of the vehicle, check vehicle engine type, check vehicle specifications and complete validation of vehicle specification. |
| Nominal Duration | **Hours** |
| Summary of the Learning Outcomes: | |
| Upon completion of this module the student must be able to: | |
| LO1. Check body type of the vehicle | |
| LO2. Check vehicle engine type | |
| LO3. Check vehicle specifications | |
| LO4. Complete validation of vehicle specification | |

**LEARNING EXPERIENCES**

**LEARNING OUTCOMES NO. 2**

**CHECK VEHICLE ENGINE TYPE**

| **Learning Activities** | **Special Instructions** |
| --- | --- |
| Read Information Sheet 2.2-1 Check vehicle engine type | If you have some problem on the content of the information sheet don’t hesitate to approach your Trainer.  If you feel that you are now knowledgeable on the content of the information sheet, you can now answer self-check provided in the module. |
| Answer Self-Check 2.2- Check vehicle engine type | Try to answer the Self-check without looking at the Answer Key  Compare your answer to Answer Key 2.2-1 |
| Observe Trainer’s demonstration on Task Sheet 2.2-1 on Check vehicle engine type | Listen carefully and attentively so that you may be able to perform a task correctly  Ask questions if are in doubt for clarification |
| Perform the Task Sheet 2.2-1on Check vehicle engine type | Remember the step-by-step procedure Check vehicle engine type |
| Evaluate the performance using the Performance Criteria Checklist 2.2-1 | Repeat the task in case fail to meet the criteria |

**OPERATION SHEET 2.2-1**

**CHECK VEHICLE ENGINE TYPE**

**Learning Objectives:**

After reading this **Information Sheet**, you must be able to:

1. Discuss about engine history.
2. Discuss the principles of internal combustions.
3. Enumerate the different engines’ classification.

**INTRODUCTION**

Engine plays an important role in the vehicle. It is the main reason why the vehicle can move autonomously. With this information sheet let us see where the engine started and how it works.

**History of engines**

Most of today’s automobiles and light trucks are powered by a spark-ignited four stroke reciprocating engine. The first engine of this type was built in 1876 by Nicolaus A. Otto in Germany. Thus, it was named Otto-cycle engine. Compared to previous internal combustion engine designs using the same amount of fuel, Otto's four stroke engine weighed less, ran much faster, and required less cylinder displacement to produce the same horsepower. A few years later, this engine design powered a motorcycle and then a horseless carriage. Other engine designs in limited use in modern autos include the rotary (wankel), two stroke, and compression ignition (diesel) engines. In a spark-ignited internal combustion engine, a precise mixture of air and fuel is compressed in a cylinder.

**Kinds of engine**

According to: operational cycle number of cylinder, cylinder arrangement, valve train type, ignition type, cooling system, and fuel type.

**Engine type, parts and components**

**Principle of internal combustion**

All automotive engines, both gasoline and diesel, are classified as internal combustion because the combustion or burning takes place inside the engine. These require an airfuel mixture burning that arrives in the combustion chamber in the correct time and an engine constructed to withstand the temperatures and pressures created by the burning of thousands of fuel droplets. The combustion chamber is the space between the top of the piston and the head cylinder. It is an enclosed area in which the fuel and air mixture is burned. The piston fits into a hollow metal tube called a cylinder. The piston moves up and down in the cylinder. This reciprocating motion must be converted to a rotary motion before it can drive the wheels of a vehicle. This change of motion is accomplished by connecting the piston to a crankshaft with a connecting rod. The upper end of the connecting rod moves with the piston as it moves up and down in the cylinder. The lower end of the connecting rod is attached to the crankshaft and it moves in a circle. The end of the crankshaft is connected to the flywheel, which transfers the engine’s power through the drive drain to the wheels.