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. 1**

**CHECK BODY TYPE OF THE VEHICLE**

| **Learning Activities** | **Special Instructions** |
| --- | --- |
| Read Information Sheet 2.2-1 Check body type of the vehicle | 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 body type of the vehicle | 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 body type of the vehicle | 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 body type of the vehicle | Remember the step-by-step procedure Check body type of the vehicle |
| 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 BODY TYPE OF THE VEHICLE**

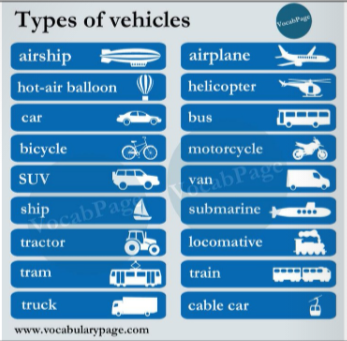
**Learning Objectives:**

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

1. Identify the different types of vehicle.
2. Identify vehicle dimensions, shape and weight.
3. Know the powertrain functions and safety practices.

**DIFFERENT KINDS OF VEHICLE**

A vehicle is a machine that transports people or cargo. Vehicles include wagons, bicycles, motor vehicle (motorcycle, cars, trucks, buses), railes vehicles (trains, trams), watercraft (ships, boats), amphibious vehicles (screw-propelled vehicle, hovercraft), aircraft (airplanes, helicopters), and spacecraft.



**VEHICLE DIMENSIONS AND WEIGHT**

A bigger, heavier vehicle provides better crash protection than a smaller, lighterone assuming no other differences. The longer distance from the front of vehicle to the occupant compartment in larger vehicles offers better protection in frontal crashes with lighter vehicles and other obstacles, so the people inside them are subject to less force.

Large vehicles aren’t as big a threat to people in small vehicles as they used to be. A lighter vehicle will always be at a disadvantage in reducing the threat SUVs and pickups pose by more closely aligning their energy - absorbing structures with those of cars.

Fuel economy can be improved without sacrificing safety. Various technologies can raise fuel efficiency without reducing the vehicle’s weight. Manufacturers can also improve fleet wide fuel economy by taking a small amount of weight of their heaviest vehicles without significant safety tradeoffs.

**Vehicle weight -** this is the weight of the vehicle that includes the standard items that are necessary for the operation of the vehicle such as fuel, coolant, oil, spare tire, and on-board tools. Luggage and occupants are excluded.

**Gross vehicle weight -** this is the weight of the vehicle to which the weight of the riding capacity and the weight of the designed maximum loading capacity have been added.



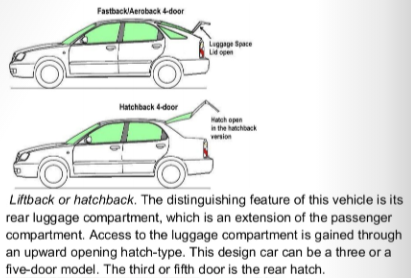
**Body shape**

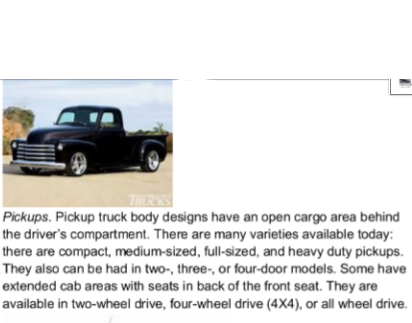
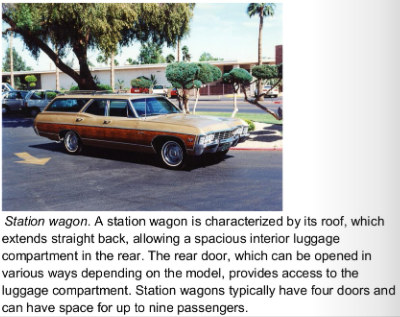
Various methods of classifying vehicles exist. Vehicles may be classified by engine type, body/frame construction, fuel consumption structures, type of drive, or the classifications most common to consumers, which are the body shape, seats arrangement, and number of doors. Eight basic body shapes are used today:





Convertibles have vinyl roofs that can be raised or lowered. A few late-model convertibles feature a folding metal roof that tucks away in the trunk when it is down. Some convertibles have both front and rear seats. Those without rear seats are commonly referred to as sports cars.











**VEHICLE DYNAMICS**

Vehicle dynamics is the study of how the vehicle will react to driver inputs on a given solid surface.

Vehicle dynamics is a part of engineering primarily based on classical mechanics.

**Factors affecting vehicle dynamics**

The aspects of a vehicle’s design which affect the dynamics can be grouped into drive train and braking, suspension and steering, distribution of mass, aerodynamics and tires.

* Drivetrain and braking
* Suspension and steering (some attributes relate to the geometry of suspension, steering and chassis.)
* Distribution of mass (some attributes or aspects of vehicle dynamics are purely due to mass and its distribution)
* Aerodynamics (some attributes or aspects of vehicle dynamics are purely aerodynamics)
* Automobile drag coefficient
* Automotive aerodynamics
* Center of pressure
* Downforce
* Ground effect in cars
* Tires
* Vehicle behaviours

**POWER TRAIN**

**Kinds of power train-** there are two types of power train setups--- the front wheel drive and the rear wheel drive. The front wheel drive powertrain employs a horizontally opposed engine. The transmission also sits sideways. The driveshafts (there are two of them) go to the front wheels via a hub bearing. In a rear wheel drive powertrain setup, the engine faces the front car, and the transmission is behind the engine. There is one driveshaft (it may be inmore than one piece, as in some trucks), which leads to the rear end. The axles protrude from either side of the rear to the wheels.

**Function of powertrain-** the power train provides power to the car. Power is made by the engine, then transferred to the driveshaft through the transmission. The driveshaft, in a rear wheel drive car, turns the gear in the rear, which in turn turns the axles and finally, the wheels. The rear and the axles are also part of the drivetrain.

**SAFETY PRACTICES**

**OSHS -** By taking these things into consideration, you can protect the most important things to your business. To get a sense of whether your safety measures are already enough, ask yourself how they affect the people in the garage, equipment, the vehicles, and the shop itself? If your safety measures do not endanger any of those aspects of your shop, you are on the right track.