

Aims and Objectives

Aim

- To be able to recognize operation of a carburettor within an internal combustion engine

Objectives

- Be able to describe the operation of a carburettor and its role within the fuelling system
 - Be able to recognize a “rich” and “lean” fuelling mixture
- Identify how fuel and air mixture is mixed within the carburettor

Carburettor

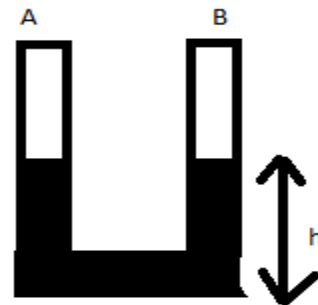
A simple carburettor consist basically of two components :

1. Float chamber
2. Mixing chamber

Float Chamber

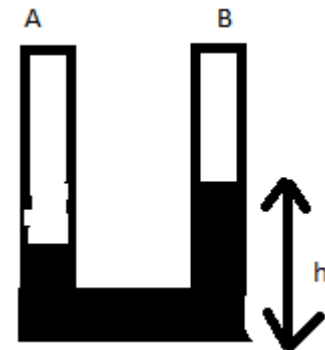
The float chamber is based upon a u tube design.

If the pressures remain the same at A and B, there will be no change in the height (h)



Float Chamber

However if there is a pressure difference at A it will cause the liquid to move up, altering the height of the liquid (h).



Float Chamber

In order to provide a restriction of fuel flow a small plug with hole is inserted at tube B. Different sizes of hole will determine the amount of fuel entering the cylinder. These are known as **jets**.

Float Chamber

- The level in the chamber is kept constant
- The top of the float chamber is kept under atmospheric pressure
- The top of the chamber has a connection for the fuel pipe from the fuel pump
- The inside of the chamber consist of a float, attached to which is a needle, the pointed end of which enters the hole through which the fuel comes into the chamber.

Float Chamber

When the chamber is empty the float lies on the bottom of the chamber, the inlet is fully open

As the chamber fills the float rises the float brings the fuel to the end of the inlet hole

Contact of the needle with the seat prevents over-fuelling.

When the fuel level falls, the needle valves re-opens allowing more fuel to enter the chamber.

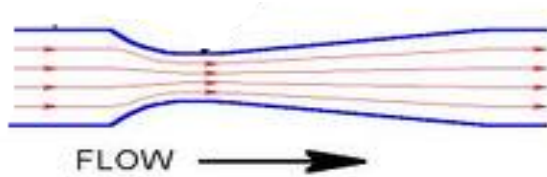
Venturi

Consists of a tube that thins out in the middle section

Gas flowing along this tube is put under pressure, and will increase in speed as it passes through the thinner section

Situated in the induction pipe that supplies the engine with air

The combination of air flowing through the venturi and the float chamber all



is supplied by the air supply from the float chamber with the air

Chokes

During cold start-ups, older vehicles where difficult to start, a choke was introduced in order to create a richer mixture making the vehicle easier to start up.

This is a device that restricts the flow of air at the entrance to the carburettor, before the venturi. This causes extra vacuum to occur, thus extracting extra fuel through the main metering system.

The choke can be controlled by the driver (via a pull knob), or the action of the choke can be operated automatically via the vehicles ECU, by the vehicle, taking readings from the vehicles thermostat, and other components and altering the fuel/air mix accordingly.