CONTROLLING PUMPS

CHOOSING A PUMP

A car windscreen washer pump works well for most purposes. It operates on a maximum of 12 V.
Such pumps can be obtained new or you can buy them used quite cheaply.

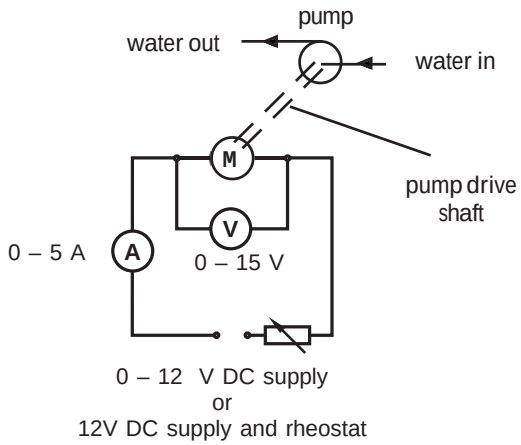
These pumps can pump water quickly and at pressures of about 15 kN/m^2.

INVESTIGATING THE PUMP

How does the rate the pump works depend on the applied voltage and the current supplied to the pump?
Here is a circuit for you to use:

You will need:

- A variable 12 V d.c. supply or a fixed 12 V d.c. supply and variable resistor.
- Ammeter 0-5 A.
- Voltmeter 0-15 V.
- A car windscreen washer pump with pipes.
- A means of measuring the volume of water and a stopclock.



Things to think about:

- What are the variables?
- Which will you control?
- What do you need to measure and record?
- How will you measure the rate at which the pump works?
- How will you record your data?
- How will you present your data?

Remember:
You will need to know what voltage or current to use to achieve certain flow rates later.

WHY DO YOU NEED TO CONTROL A PUMP?

Before you can work out a complete system (input, process and output), you need to ask:

- Do you need to turn a pump on regularly, say, for an hour every day at the same time?
- Do you want a pump to turn off after a set time? Do you need to change this set time?
- Do you want to turn a pump ON when a liquid level is LOW and OFF when it reaches a certain level?
- Is the pump being used, for example, to keep soil moist?

SOME IDEAS