



**A Respiratory Aid Device for local build and use**

## **Simple Air Volume Measurement**

## Basic Tidal Volume Measurement

This system uses water displacement to measure the output air volume at any particular RAD shelf height. A scale can be devised for any individual machine using this method .

A vessel (the blue bucket) is drilled about 40mm down from the lip and fitted with a drain spout. Added water settles to a the specific level of the spout. A liftable lid for the vessel is measured and extended with layers of flat material so that the underside of the lid becomes just below the level of the surface of the water held in the vessel.

The lid is put in place causing any small difference in water volume to be expelled through the spout. Then the lid is removed and put to one side. The BVM is set up on the shelf with an air tube which has small flat polythene bag air sealed on the delivery end. Then the RAD is cycled once.

Instantly on completion of a single machine cycle the polythene bag is tied off to seal the air within it. The air filled bag is then placed afloat in the vessel (blue bucket with a spout) and the displaced water is collected in a jug and transferred to a graduated cylinder for measurement.



This method although simple in concept, is surprisingly consistent in providing a measured air volume scale for reference and allows for reasonably accurate calibration for inconsistencies both in build accuracy, and in the make of BVM to be utilised.

The small reduction in air volume due to the compression of the air as it is held below the surface of the water in the bag is negligible for this purpose.