Manual Resuscitators

Manual resuscitators are portable manual ventilating devices used for ventilating the patient during:

- Resuscitation
- Transport of the patient
- As a standby measure for the nonfunctioning of anesthesia machine
- Administering anesthesia when anesthesia machine is not available, e.g., in an infield situation.

They are known by many names, the most common being ―AMBU bag‖ i.e., artificial mandatory breathing unit or air mask bag unit. They are inflated at rest.

The devices are available in three sizes:

1. Adult: It delivers a tidal volume of 600 mL and has a capacity of 1,600 mL. It can be used in adults weighing more than 30 kg.
2. Child: It has a capacity of 500 mL and can be used in patients weighing between 7 kg and 30 kg.
3. Neonatal: It is capable of delivering the tidal volume up to 20–50 mL and can be used in infants up to 7 kg.

The various components of any ventilating system are:

- Self-inflating bag
- Nonrebreathing valve
- Bag refill valve
- Attachment for oxygen enrichment
- Pressure limiting device for pediatric bags
- Attachment to the scavenging system

Oxygen Enrichment Device:

The manual resuscitator can deliver a fraction of inspired oxygen (FiO_2) of at least 0.21.

- An oxygen reservoir can be added to increase FiO2, up to 15 L/min

Pressure Limiting Devices:

It is also called a pressure relief valve or pop-off valve. It opens at an opening pressure of 45 cm of water for infant and pediatric bags and thus prevents lung injury because of barotrauma and gastric inflation. In adults, the opening pressure is kept at 60 cm of water.

A. Laerdal manual resuscitator B. Artificial breathing unit or air mask bag unit

**Paediatric version exists .Neonatal: ~240 mL
Paediatric: ~500–600 mL
Adult: ~1,500–1,600 mL