CHAPTER 2
PRE USE FUNCTIONAL CHECKS

2.1 Set Up

Along with the contents of the shipping carton you will require the following items to enable you to undertake the pre-use functional check:

[1] Full breathing air or medical grade oxygen cylinder.

[2] Air or oxygen regulator with a 50 PSI outlet and the correct DISS or quick connector for the gas being used. The regulator must be able to deliver an output flowrate of >120 L/min at no less than 45 PSI (3.1 Bar).

[3] Calibrated Test Lung.

Having connected the supply hose to the regulator, turn on the gas supply. Using a mild soap solution, spray the input connection to the resuscitator to check for leaks. If any leak is present, tighten the connection "by hand" (Do not use a wrench) and re-test.

Once no leaks are found, connect the test lung to the 15/22mm patient connector on the resuscitator. If the leak cannot be stopped, check and replace the sealing "O" ring on the hose connection to the resuscitator. If the leak persists, replace the hose.

2.2 Testing of the Individual Features of the Ventilator

The following features can be individually tested during the Pre-use Functional Check:

[1] Peak Airway Pressure and Audible Alarm.

[2] Ventilation Frequency and Tidal Volume.

[3] Manual Ventilation.

[4] Demand Valve Function and Automatic Circuit Shut Off.

[5] Bleed Flow.

CHAPTER 3
OPERATING PROCEDURE

3.1 Connecting the Supply Hose

The supply hose provided is attached to the oxygen inlet on the rear of the resuscitator and is tightened "finger tight" (fig 1).

WARNING: The use of excessive force in tightening the supply hose may damage the seal and /or thread.

The facemask is attached to the patient connection port by simply pushing the mask onto the 22mm taper.

Connecting the supply hose (fig 1)

3.2 Manual Ventilation and Cardiac Compressions

The **CAREvent® CA-G05 Handheld Resuscitator** has a Manually Actuated, Automatic Ventilation Override Button (Manual Button) with a 20 second delay to automatic cycling re-start to assist in the timing of ventilations in conjunction with external cardiac compressions.

By using the Manual Button", the operation of the ventilator can be easily timed with the chest compressions so as to avoid the potential problem of the aspiration of stomach contents due to gastric distension which may occur if overlap of chest compression and inflation occurs. (It has been shown in some studies that, in patients that are intubated, this overlap of compression and inflation may increase cardiac output without the danger of gastric distension.) The flowrate provided is equivalent to the preset automatic flowrate.

1. If no respiratory effort is observed, position yourself above the patient's head. Turn on the gas supply.

2. Allow the device to cycle once and then apply the face mask over the patients mouth and nose.The thumb and index fingers are used to hold the mask to the face while the remaining three fingers of each hand are placed along the angle of the jaw. A tilt action is used to hyperextend the neck and move the jaw forward. This helps displace the tongue away from the back of the throat and maintains an open airway.

3. If manual Ventilation is to be used depress the manual button and observe the rise of the patient's chest. Release the button when chest rise is adequate.

4. If the patient's chest does not rise or gas escapes around the mask or the pressure relief system (c) operates (fig 3), reposition the patients head and adjust your hand position to obtain an effective mask seal and an open airway.

5. Monitor the patient's skin, nailbed and lip colour

6. If mask indicates signs of vomitus, remove immediately and clear the airway. Ensure the mask and valve are free from obstruction. Restart ventilation immediately after clearing airway. (See also 2.4).

7. Continue ventilation at an appropriate rate until relieved or until spontaneous breathing returns.

3.3 Automatic Ventilation

1. If you are commencing automatic ventilation immediately, follow steps 1 -2 and 4 - 7 above.

2. Closely observe the patient's chest movements. If there is any leak from around the mask or any obstruction in the patients airway (blow off valve will operate) reposition patients head and adjust mask and hand position to ensure a good airway and mask to face seal.

NOTE: If the patient is intubated (or if the patient is to be intubated following mask ventilation), remove the face mask from the 22mm connector and attach the device onto the 15mm Endotracheal tube connector.

1.5 Safety Precautions

The CAREvent® CA-G05 Handheld Resuscitator is designed to provide emergency ventilatory support to patients suffering from respiratory and/or cardiac arrest.

The CAREvent® CA-G05 Handheld Resuscitator is intended for use by suitably trained and qualified personnel. The following precautions should always be observed:

1. WHEN NOT IN USE, ALWAYS TURN OFF THE CYLINDER.

2. NEVER ALLOW OIL OR GREASE TO COME INTO CONTACT WITH ANY PART OF THE CYLINDER, REGULATOR OR RESUSCITATOR.

3. DO NOT DISASSEMBLE ANY PART OF THE RESUSCITATOR EXCEPT WHERE DESCRIBED IN THIS MANUAL, AS ANY UNAUTHORIZED DISASSEMBLY WILL INVALIDATE THE WARRANTY.

4. AFTER USE, ALWAYS ENSURE THAT ALL COMPONENTS ARE CLEANED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED IN THIS MANUAL.

5. ENSURE THAT ALL COMPONENTS ARE REASSEMBLED CORRECTLY AND THAT ALL ITEMS ARE REPLACED IN THE CARRYING CASE.

6. AFTER USE, ALWAYS ENSURE THAT A FULL AIR OR OXYGEN CYLINDER IS ATTACHED BEFORE RETURNING THE UNIT TO ITS NORMAL STORAGE POSITION.

7. ENSURE THAT A NEW SEALING WASHER IS USED EVERY TIME YOU ATTACH THE REGULATOR TO THE CYLINDER.

8. IT IS RECOMMENDED THAT AN ALTERNATIVE MEANS OF VENTILATING THE PATIENT BE AVAILABLE IN CASE OF GAS SUPPLY FAILURE.

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1.4 Performance Specifications

TIDAL VOLUME:	0.5 litres
BREATHS PER MINUTE:	10
I:E RATIO:	1 : 2
AUTOMATIC FLOW RATE:	15.0 L/Min
MANUAL FLOW RATE:	15.0 L/Min
DELAY TO AUTOMATIC CYCLING RE-START AFTER MANUAL BUTTON DEPRESSION:	20 SECONDS
POSITIVE PRESSURE BLEED FLOW:	2 L/Min
AUTO SHUTOFF	5 to 8 s
DEMAND BREATHING FLOWRATE:	0 – 120L/Min
INSPIRATORY RESISTANCE @ 60 L/Min:	0 to - 6 cmH_20
INPUT PRESSURE:	45 - 87 PSI 3.1 - 6 Bar
MAXIMUM AIRWAY PRESSURE:	60 cmH_20 58.8 mBar
OPERATING TEMPERATURE:	-18°C to + 50°C 0°F to +122°F
STORAGE TEMPERATURE:	- 40°C to + 60°C - 40°F to +140°F
INPUT CONNECTION:	9/16" DISS
PATIENT CONNECTION:	15 / 22 mm
PATIENT VALVE DEAD SPACE:	8 ml
WEIGHT:	16 OZ / 0.45 Kg
SIZE:	140 x 63 x 73 MM 5.5 x 2.5 x 2.9IN.
CYLINDER DURATION: @ 10 BPM / 0.5 Litres V_T	82 minutes

(Based on an Aluminum "D" size cylinder containing 415 Litres of air or oxygen.)

NOTE: For one person CPR (and when using a head harness to secure the resuscitator to the patient) the use of the manual override provides a 20 second delay to automatic cycling re-start allowing for the provision of 30 chest compressions at the recommended rate of 100 compressions/minute.

WARNING: Automatic ventilation of the patient who is intubated or whose mask is held in place with the optional head harness system, does not mean that the patient is safe to be left unattended and constant observation of the patient's pulse and chest movement must be continued.

WARNING: The use of gas pressure regulators that do not maintain a minimum output pressure and flowrate in line with the requirements of the specification may cause the device to fail resulting in the patient not being ventilated.

3.4 Action to be taken if patient vomits during resuscitation

Should the patient vomit into the mask during resuscitation the following steps should be followed to clear the foreign material:

1. Remove the mask from the patient's face and clear any foreign material from the patients airway. Depress the manual button or allow the resuscitator to cycle automatically for a few breaths to clear the mask and valve of foreign material.

2. If depressing the manual button repeatedly or automatically cycling the resuscitator does not clear the foreign material from the patient valve,turn the selector to the OFF position, remove the facemask and unscrew patient valve swivel housing (e) from the resuscitator body being careful to ensure that the diaphragm is retained (Fig.3).

3. Shake out any foreign material from the resuscitator, diaphragm, face mask and patient valve swivel housing.

4. Reassemble the facemask, patient valve and diaphragm and attach to the resuscitator.

NOTE: When using the single use patient valve, vomitus may be forced past the diaphragm and contaminate the bio- filter. This may necessitate the use of a new single use valve.

3.5 Demand Breathing and Automatic Circuit Shut Off

Should the patient commence spotaneous breathing at a flowrate of greater than 30 lpm for more than 1 second the **CAREvent® CA-G05** will sense the patient's inspiratory effort and will stop cycling automatically allowing the patient to "De- mand Breathe" at their own rate and volume on 100% oxygen (if connected to an oxygen supply). If they cease spontaneous breathing the ventilator will recommense automatic cycling after a delay of 5 - 8 seconds (depending on the depth of the patients previous respiration) without intervention by the rescuer.

CHAPTER 4
SERVICING

4.1 Routine Maintenance

WARNING: **The CAREvent CA-G05 is designed to provide respiratory support in emergency situations. Failure to follow the maintenance and inspection routines properly could result in incorrect operation of the resuscitator.**

To ensure proper operation of the resuscitator regular inspection and checking of the resuscitator and accessories for correct function should be undertaken by a responsible member of staff on a routine basis. This check is to ensure that all of the accessories and resuscitator components are present, the air or oxygen cylinder is full and that the resuscitator is in working order.

Regulator working pressure, suction (if equipped), and ventilator limiting pressures should be checked at least every six months, and more frequently in high use applications. Units with test pressures outside of the ranges listed in the product specifications should not be used. The product is **not** designed for field disassembly or service outside that indicated in this manual. Any malfunctioning units should be returned to the manufacturer or an Authorised Dealer. Unauthorised repairs will nullify the product warranty.

NOTE: **Units with test parameters outside of their ranges listed in the product specifications, should not be used. Any units not meeting performance criteria should be returned to the Manufacturer or an authorized repair centre.**

1.3 Features

The **CAREvent® CA-G05 Handheld Resuscitator** is a pneumatically powered, time/volume cycled ventilatory resuscitator with the added feature of a Manually Actuated, Automatic Ventilation Override Button (Manual Button) to allow the operator to control the ventilations manually at a rate and volume they desire. The ventilator allows the breathing patient to "Demand Breathe" through the device. Their inspiratory effort causes the automatic cycling to cease. Should they stop breathing the ventilator will automatically restart cycling in the setting selected.

A 2 litre per minute constant "BLEED FLOW" is provided to ensure a positive remains in the mask throughout the ventilation cycle to decrease the risk of entraining potentially toxic atmospheric air into the mask.

The "pneumatic logic circuit" can be run on either approved, compressed, breathing air or medical oxygen. The unit is self-contained and only requires its attachment to a regulated oxygen or air supply (as specified) for immediate use.

The CAREvent® CA-G05 Handheld Resuscitator

- Can be operated on either breathing air or medical grade oxygen.
- Meets the American Heart Association and European Resuscitation Council Guidelines 2005 (G05) recommendations for CPR.
- Provides a physiologically normal adult respiratory rate and volume.
- Has an Audible Airway Pressure Limiting System.
- Is lightweight and extremely durable.
- Is designed for resuscitation in potentially toxic atmospheres.
- Has a Manually Actuated, Automatic Ventilation Override Button (Manual Button) with a 20 second delay to re-start of automatic cycling to allow the provision of 30 chest compressions.
- Complies with the requirements of the ERC and AHA Guidelines 2005 (G05) for the provision of a 30:2 compression:ventilation ratio.
- Has a preset, automatic setting compatible with a range of adult patients with a tidal volume and frequency of ventilation in line with established guidelines.
- Provides "Demand Breathing" with automatic cycling shut off and restart.
- Has a 2 L/min Bleed Flow to reduce the risk of air entrainment due to mask leakage

CHAPTER 1

1.1 Introduction

The **CAREvent® CA-G05 Handheld Resuscitator** provides trained individuals with a safe and effective means of providing artificial ventilation during respiratory and/or cardiac arrest.

The **CAREvent CA-G05 Handheld Resuscitator** is lightweight, portable, and extremely durable. Designed for the demands of the emergency medical and rescue environment where toxic gas may be present, they can be operated anywhere medical oxygen or breathing air supply is present.

NOTE: An Automatic and Manually Triggered Resuscitator is considered a critical device, and its components considered critical components. Only those individuals trained in Cardio- Pulmonary Resuscitation and the operation of oxygen-powered ventilators should use this equipment. Thoroughly review this instruction manual before use.

Indications For Use:

The **CAREvent CA** is designed to deliver medical oxygen and medical air to adult patients to provide short term ventilator support in pulmonary resuscitation in emergency medical and rescue environment where toxic gas may be present. The ventilator is suitable for use in:

- Pulmonary resuscitation during respiratory and/or cardiac arrest.
- Short term ventilatory support in the confined space rescue in IDLH (Immedi- ately Dangerous to Life and Health) environment, pre-hospital, Intra-hospital, inter- hospital and air ambulance transport of non-breathing patients.

Caution: Federal law restricts this device to sale by or on the order of a physician.

1.2 Warranty

This equipment is manufactured from the finest quality materials. Each individual part is subject to strict quality control tests to ensure exceptionally high standards. The manufacturer warrants to the purchaser of the **CAREvent CA-G05 Handheld Resuscitator** that its component parts are free from defects in material and workmanship for a period of two years from the date of purchase. The manufacturer will replace and/or repair all parts of the resuscitator at its option for two years from the date of purchase at no cost to the purchaser, upon the notification of the defects, in writing by the purchaser. All shipping costs shall be borne by the purchaser. The manufacturer shall be liable under this warranty only if the resuscitator and its parts have been used and serviced in the normal manner described in the instruction manual. There are no other expressed or implied warranties. This warranty gives no specific legal rights. You may also have other rights that may vary according to local regulations.

4.2 Cleaning the CAREvent® CA-G05 Handheld Resuscitator and Accessories

Routine cleaning of the equipment should be undertaken to maintain the equipment in a clean condition.

Reusable patient valve swivel housing and diaphram can be cleaned using a mild soap solution and disinfected using a legally marketed commercially available disinfectant, suitable for the application. Single use patient valves and masks should be discarded after each patient use and replaced with a new unit.

All other components should be wiped clean with a mild soap solution. Under no circumstances should the complete unit be allowed to be soaked or immersed in cleaning solutions.

Disassembly of the resuscitator (fig 3.)

THE RESUSCITATOR MUST BE THOROUGHLY CLEANED AFTER EACH PATIENT USE.

1. Operate **CAREvent® CA-G05 Handheld Resuscitator** to blow out any contaminant from the patient valve.
2. Ensure **CAREvent® CA-G05 Handheld Resuscitator** is disconnected from the gas supply source.
3. Remove the patient valve swivel housing (a) from the body of the resuscitator (c), being careful to ensure that the diaphram (b) is retained (fig 3).
4. Remove the facemask from the resuscitator (after removing the mask retaining insert (if supplied) using the extraction tool).
5. Shake out any foreign material.
6. Wash all components thoroughly in a mild soap solution and disinfect as required.
7. The resuscitator can be wiped over with a soft cloth and mild soap solution.
8. Dry all components thoroughly.
9. Reassemble unit, connect to an air or oxygen supply to check operation prior to packaging for emergency use.

NOTE: If the single use valve/mask combination is being used, safely dispose of these items.

CHAPTER 5

CAREvent® CA-G05 Handheld Resuscitator Accessories

17MP9039	Reusable patient valve swivel housing
17MP1528	Reusable Patient Valve Diaphragm
01FG6500	Mask Retaining Insert
01FG6501	Mask Insert Extraction Tool
01FG6502	Head Harness System
17MP7010	Single Use PEEP Valve
01FV4314	Conversion Hose O_2 - Air

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