

OXY-life™

Oxygen Resuscitator

OPERATING MANUAL



DISCLAIMER: This manual is intended as a guide only. Medical Developments International Limited accepts no responsibility for incorrect operation of the equipment or incorrect management of patients. It is essential that all individuals operating this equipment are fully trained in anaesthetic procedures.

© COPYRIGHT RESERVED 2006

No part of this manual may be reproduced in any form without the written permission of Medical Developments International Limited

OXY-life™ RESUSCITATOR

- *Simplicity of design*
- *Stainless steel case: drop down front panel*
- *Accessibility of components for instant operation*
- *Simultaneous oxygen for 2 patients*
- *OXI-vac™ Suction System*

Features

1. Complies to Australian Standard AS 2488-1995 'Resuscitators intended for use with humans.'
2. KDK150Autovalve™. Cartridge type. Combined regulator/flowmeter reduces cylinder pressure to 400 kPa. Flow range 0-15 L/min with 0, 3, 8 & 15 L/min click settings. OXYGEN FLUSH operates at all flow rates (including zero). A 'double adaptor' with 2 self-seal outlets is connected to the right side.
3. Stainless steel case with rear panel for clear view of accessories. Cradle fitted underneath the stainless steel case accepts size 'C' cylinders. Optional case with drop down front panel.
4. Optional Model: OXY-life™ Resuscitator in a soft carry bag.
5. Self-seal valve fitted to left side of the case for an external oxygen supply.
6. MTV-100/Manually Triggered Ventilator: Demand valve with push-button override. Attached with a white oxygen hose line to a self-seal valve in the 'double adaptor'. The outlet of the MTV-100 is a 22/15 mm M/F taper for attachment of an adult or paediatric facemask, endotracheal tube or laryngeal mask.
7. Oxygen therapy can be administered to a second patient simultaneously: The flow rate can be set between 0-15 L/min.
8. OXI-vac™ Suction System.
ON-OFF push button operation. The polycarbonate 250 mL reservoir bottle is marked at 200 mL. Narrow neck to prevent spillage when removing bottle. Spare suction bottle with blue cap for rapid changeover.
9. The panel inside the lid has elasticised supports to secure the accessories such as therapy mask, airways, suction catheter, and nebuliser.

TABLE OF CONTENTS

| | | |
|----|---|---|
| 1 | Preparation for Use | 2 |
| 2 | Instruction Guidelines..... | 2 |
| 3 | Accessories..... | 3 |
| 4 | OXI-vac™ Venturi Suction System..... | 4 |
| 5 | MTV-100/Manually Triggered Ventilator | 5 |
| 6 | Precautions | 5 |
| 7 | Specifications | 5 |
| 8 | Recommended Weekly Test Procedure | 6 |
| 9 | Servicing | 6 |
| 10 | Model Codes..... | 6 |
| 11 | Parts List | 6 |
| 12 | Guarantee | 7 |
| 13 | MTV-100/Manually Triggered Ventilator | 8 |

1 Preparation for Use

1. Check that the oxygen supply cylinder is clean and marked 'Medical Oxygen'. Insert the oxygen cylinder into the cradle beneath the stainless steel case. Check that the 'Bodok' seal is in place. Line up the cylinder valve to locate on the indexed stirrup pins. The indexed pins comply with an International Standard to ensure only an oxygen cylinder can be fitted. Tighten the stirrup screw to secure the valve into position.
2. Open the cylinder valve *slowly* at least one full turn anti-clockwise. An oxygen key wheel, secured by a chain, is located in a black rubber grommet in the left side of the case.
3. Observe the pressure gauge & note the contents. If less than 1/2 full ensure a second oxygen cylinder or an external supply cylinder is available.
4. A self-seal valve is fitted to the outside of the case. Connect to the left side of the KDK150 Autovalve™. Oxygen can be supplied from an external supply using a colour coded white oxygen hose line with a white oxygen handwheel at each end. One handwheel connects to the external self-valve and the other to a regulator fitted to a large supply cylinder or a wall outlet.

2 Instruction Guidelines

Caution: The OXY-life™ oxygen resuscitator is only recommended for use by those specially trained in the use of oxygen equipment.

Unconscious Patients

1. Clear the airway
2. IF THE VICTIM IS NOT BREATHING place the facemask in position ensuring the narrow part of the facemask is between the eyes. Keeping the head pulled back firmly, depress the button on the MTV-100 Manually Triggered Ventilator. If the facemask is correctly applied the patient's chest and abdomen will rise gently. Release the button when an adequate tidal volume has been delivered.
3. If there is an obstruction to free flow the MTV-100 will automatically stall. Release the button, reposition the patient's head and try again.
4. WHEN THE PATIENT COMMENCES TO BREATHE the oxygen flow is *automatically* triggered on inspiration. *It is not necessary to adjust the flows for adults and children.*

Breathing Patients

1. Connect the green oxygen therapy tube to the flow outlet at the rear left side of the KDK Autovalve™. Connect the other end to a:
 - (a) Therapy mask preferably fitted with an oxygen reservoir bag. Recommended flow rate 8 L/min. Press the Oxygen Flush* to refill the reservoir bag as necessary **or**
 - (b) A nasal cannula. Recommended flow rate 3 L/min **or**
 - (c) Bag Valve Mask (BVM) resuscitator preferably fitted with an oxygen reservoir bag. Recommended flow rate 8 L/min. Press the Oxygen Flush* to refill the reservoir bag as necessary.

***NOTE:** This outlet is particularly useful to connect to a self-inflating bag resuscitator with a reservoir bag. 8 L/min is recommended: to conserve oxygen press the OXYGEN FLUSH to rapidly refill the reservoir bag only as necessary.

3 Accessories

The back plate is fitted with elasticised supports to secure accessories such as a therapy mask, airways, suction catheter, nebuliser.



4 OXI-vac™ Venturi Suction System

Includes a polycarbonate 250 mL reservoir bottle with a marking at 200 mL, secured in an aluminium bottle base screwed into the base. The narrow neck reduces the likelihood of spillage when removing a used bottle. A spare suction bottle with blue cap is included for rapid changeover.



Operation of the OXI-vac™ Suction System

1. Attach one end of the silicone suction tubing to the outlet of the OXI-vac™ system and the other end to a Y-suction catheter.
2. Push the control knob to the ON position. Occluding the opening near the base of the suction catheter controls suction.
3. The suction control must be turned OFF IMMEDIATELY after use to avoid wastage of oxygen.



WARNING *The OXI-vac™ operates on a venturi principal: a vacuum is created by a high oxygen flow through a narrow jet. The oxygen cylinder can be rapidly depleted if the suction control is left on inadvertently.*

4. After use, remove the suction tubing, lift the OXI-vac™ from the bottle base, unscrew the bottle, fit the blue cap (from the spare bottle) and discard. Then screw the clean bottle onto the OXI-vac™ and replace the assembly in the bottle base.



Precautions:

1. Turn the oxygen cylinder valve on slowly. Naked flames must not be used in the vicinity of the apparatus. Do not put oil or grease on valve, body or connections.
2. This equipment should only be used after a training program on resuscitation has been completed.
3. Clean the equipment after each use. Use a cloth moistened with chlorhexidene ('Hibitane') in alcohol to wipe over the components.
4. Turn the oxygen supply cylinder OFF after use. Ensure a spare full oxygen cylinder is available and situated adjacent to the machine.

5 MTV-100/Manually Triggered Ventilator

See subsequent pages for full details.

**6 Precautions**

1. Turn the oxygen cylinder valve on slowly.
2. Naked flames must not be used in the vicinity of the apparatus.
3. Do not put oil or grease on valve, body or connections.
4. This equipment should only be used after a training program on resuscitation has been completed.
5. Clean the equipment after each use. Use a cloth moistened with chlorhexidene ('Hibitane') in alcohol to wipe over the components.
6. Turn the oxygen supply cylinder OFF after use.
7. Ensure a spare full oxygen cylinder is available and situated adjacent to the machine

7 Specifications

Length: 580 mm Width: 250 mm Height: 210 mm
Weight: 5.5 kg (without cylinder)

8 Recommended Weekly Test Procedure

1. Check the oxygen supply. Turn the oxygen cylinder ON. If the contents gauge registers less than 1/2 full, change the oxygen cylinder.
2. Depress the button of the MTV-100 to ensure oxygen is flowing. Occlude the outlet and ensure the MTV-100 stalls and restarts after the occlusion is removed (the button must be pressed again).
3. Turn the OXYGEN THERAPY control ON & listen for oxygen flow.
4. Attach the green therapy tube to the flow outlet of the KDK Autovalve™ and listen for an increase in oxygen flow as the control knob is rotated anti-clockwise. Depress the OXYGEN BYPASS and listen for rapid flow.
5. Test the Venturi Suction System.
Connect the suction tubing and place the open end in a glass of water. Rotate the knurled knob of the venturi valve 1 turn anti-clockwise. 250 mls (8 ozs) of water should be aspirated within 4 seconds.

9 Servicing

The OXY-life™ Resuscitator should be serviced annually.

10 Model Codes

RS-7515-10 OXY-Life™ Resuscitator in stainless steel case (drop down front panel)
RS-7515-SB OXY-Life™ Resuscitator in soft carrying case

11 Parts List

RS-7515-MTV MTV-100/Manually Triggered Ventilator
AV-7560-150 KDK150 Autovalve™
S-OV-00 OXI-vac™ Suction system
S-OV-20 Suction bottle & Cap (Disposable)
S-OV-40 O-ring S-106 (to seal suction bottle)

12 Guarantee

Medical Developments International Limited (MDI) warrants to the original purchaser that any part or parts, which on examination by MDI, prove to be defective within 24 months from the date of delivery to the original purchaser, will be replaced free of charge. This warranty does not include freight costs, consumables, plastic and perishable items. MDI will not be responsible for labour or transportation charges incidental to the replacement of any part or parts. This warranty is in lieu of all other warranties, obligations or liabilities expressed or implied. MDI neither assume nor authorize any other person to assume liability in connection with the sale. This warranty will not apply to any product that has been subject to accident, abuse or misuse. The warranty is not applicable when unauthorized repairs or modifications have been attempted, or when entire units or parts are damaged by accident, misuse or improper handling procedures

When returning the product under warranty, please include the following details:

Manufactured by: **MEDICAL DEVELOPMENTS INTERNATIONAL LIMITED**
ABN 14 106 340 667
Factory 7, 56 Smith Road Springvale, Victoria 3171 Australia
Tel: +61 3 9547 1888 Fax: +61 3 9547 0262
Web: www.medicaldev.com Email: mdi@medicaldev.com

Purchaser:.....

Address:

Post Code:..... Country:.....

Model:..... Serial No:..... Date of Purchase:.....

Invoice No: Supplier:.....

13 MTV-100/Manually Triggered Ventilator

Note: *For convenience, the following is a copy of the insert leaflet accompanying the MTV-100/Manually Triggered Ventilator. Medical Developments International Limited does not accept any responsibility for the information provided.*

The MTV-100/Manually Triggered Ventilator is today's most advanced design in oxygen-powered, manually-triggered, breathing devices. Designed to deliver 100% oxygen to a breathing or non-breathing pre-hospital patient, the MTV-100/Manually Triggered Ventilator provides emergency care professionals with greater versatility, increased safety, and improved performance over any existing hand-held device.

Advanced pneumatic technology limits and regulates gas pressure, providing patients with reliable, effective airflow, while giving emergency professionals a new level of assurance in administering oxygen. The MTV-100/Manually Triggered Ventilator may be attached to a portable, pressure-regulated, oxygen cylinder or central oxygen source. And this ventilator is versatile for use with a mask, endotracheal tube or tracheotomy tube. The next generation in oxygen-powered, manually-triggered, breathing devices the MTV 100/Manually Triggered Ventilator provides the industry with a new standard of safety and performance.

Specifications (All specifications at 50 psi inlet pressure)

SUPPLY PRESSURE:

50 ±5 psig

ANTI-ASPHYXIATION:

55 LPM minimum @ -5 cm H₂O pressure

OPENING PRESSURE:

(crack) 0 to -2.5 cm H₂O

STORAGE TEMPERATURE:

-40 °F TO 160 °F

MANUALLY TRIGGERED FLOW

40 ± 5 LPM @ 50 psi supply

OPERATING TEMPERATURE:

-30 °F to 125 °F

DEMAND FLOW:

100 LPM at 0 to -5 cm H₂O pressure

CAUTION: At temperatures below 30 °F ,the high pressure limit range is between 60-80 cm H₂O

PRESSURE LIMIT:

60 ± 5 cm H₂O

INLET FITTING:

Standard male oxygen DISS (swivel)

SECONDARY PRESSURE RELIEF:

65 - 80 cm H₂O max

FILTER:

25 micron, wire mesh

EXPIRATORY RESISTANCE

Less than 2.5 in. H₂O @ 160 LPM

OUTLET:

22mm outside diameter x 15mm inside diameter

PEAK DEMAND FLOW

115 ± 10 LPM @ 50 psi inlet.
-5 cm H₂O or less to obtain 100 LPM

MATERIAL:

Body- Vectra Cap- Vectra
Button- Vectra Outlet- Polysulfone
Inlet Fitting - Plated brass

Operation

Read and follow these instructions carefully. Pay particular attention to all WARNING statements.

CLEAN AND DISINFECT THE MTV-100/Manually Triggered Ventilator AFTER EVERY USE.

Warning

The MTV-100/Manually Triggered Ventilator is designed to be used on adults and children, **and should not be used on infants**. This equipment should be used only by properly trained personnel. The unit should not be used in oxygen deficient atmosphere or near open flame. Do not smoke while using this unit.

Resuscitation

1. Install a standard medical mask on the MTV-100/Manually Triggered Ventilator and connect the hose to an oxygen supply capable of delivering 100 LPM @ 40-60 psig. These steps should be accomplished prior to the actual need for resuscitation.
2. Turn the oxygen supply valve on slowly.

Warning

When turning on the oxygen supply, be sure the MTV-100/Manually Triggered Ventilator outlet is not blocked.

3. Verify that there are no obstructions in the patient's throat or mouth (vomitus, foreign bodies, broken dentures, etc.).
4. With one hand placed under the patient's chin, tilt the head back (to open the patient's air passages) and place the mask over the nose and mouth. Hold the mask in place with the thumb, index finger, and middle finger, while using the rest of the fingers under the chin to hold the patient's head back.
5. Using the other hand to assist in holding the MTV-100/Manually Triggered Ventilator and mask in place, depress the manual control button and hold it down until the patient's chest rises. Then release the button and allow the patient to exhale. Repeat this cycle 10 times per minute for an adult, and 20 times per minute for a child. If the patient begins to breath spontaneously, maintain the mask seal and the flow of oxygen, but do not depress the manual control button. The patient will receive 100% oxygen as a result of his inspiratory effort.

Warning

Depressing the Manual Control Button when the patient is breathing spontaneously may make it impossible for the patient to exhale.

Heart Lung Resuscitation

The MTV-100/Manually Triggered Ventilator may be used for Heart Lung Resuscitation when a combination of lung resuscitation and external cardiac compression is required to restore the heart beat and breathing of patient. Refer to JAMA, October, 1992

Maintenance

Cleaning

Warning

All cleaning procedures must be performed in a hydrocarbon residue free area because of the danger of spontaneous combustion when the residues are exposed to gaseous oxygen.

Clean & disinfect the MTV-100/Manually Triggered Ventilator after every use

1. Remove the outlet adapter and the exhalation valve assembly from the MTV-100/Manually Triggered Ventilator.
2. Clean all foreign matter from the outlet adapter and the exhalation valve assembly with a mild soap solution, being careful not to get any liquid inside the MTV-100/Manually Triggered Ventilator subassembly. Rinse the parts thoroughly in clean water.
3. Rinse outlet end of the MTV-100/Manually Triggered Ventilator body assembly thoroughly in clear water.
4. Carefully examine the parts of the MTV-100/Manually Triggered Ventilator. Replace any cracked or damaged parts.
5. Disinfect the MTV-100/Manually Triggered Ventilator body assembly and components by cold disinfecting.

Cold Disinfecting

1. Immerse the outlet adapter and the exhalation valve assembly from the MTV-100 Manually Triggered Ventilator in a CIDEX solution according to the disinfectant manufacturer's instructions.
2. The MTV-100/Manually Triggered Ventilator body assembly can be flushed with water and CIDEX only from or through the outlet end of the valve. After flushing, rinse thoroughly with sterile water.

Caution

Do not submerge the MTV-100/Manually Triggered Ventilator body in liquid.

3. Remove the outlet adapter and the exhalation valve assembly from the CIDEX solution and rinse thoroughly with sterile water. Rinse repeatedly to be sure that all the CIDEX solution is removed from the parts.
4. Connect the MTV-100/Manually Triggered Ventilator body assembly to an oxygen supply. Turn on the oxygen supply and depress the manual control button several times to blow out any liquid that may have entered.
5. Check the exhalation valve assembly to be sure the flapper valve is not twisted and the locating bosses are properly positioned.

Warning

If the flapper valve is twisted or the locating bosses are not properly positioned, the MTV-100/Manually Triggered Ventilator will not function properly. Make sure that the flapper valve lies flat against the seat.

6. Reassemble the parts and test the unit with a Test Kit, P/N109. Follow the instructions included with the Test Kit.

Testing

The MTV-100/Manually Triggered Ventilator should be tested periodically to ensure proper performance. Testing must be performed every time the unit is disassembled or cleaned and at least every three months if the unit is not used.

Initial Test

1. Connect the MTV-100/Manually Triggered Ventilator to an oxygen supply capable of delivering 100 LPM @ 40-60 psig.
2. Open the oxygen supply valve slowly.
3. Depress the manual control button. Oxygen should begin to flow. Release the button. The flow should cease immediately.
4. If the MTV-100/Manually Triggered Ventilator continues to flow oxygen or has an audible leak, it is in need of repair and should NOT be used on a patient. Return the MTV-100/Manually Triggered Ventilator to an authorized repair facility.

Positive Pressure Test

A Test Kit, P/N 109, is available for performing the following test:

1. After performing the Initial Test above, insert the outlet of the MTV-100/Manually Triggered Ventilator into the open tee fitting on the Test Lung Assembly. P/N 109.
2. Slowly depress the manual control button. The gauge reading should reach 44 ± 4 mm Hg (60 ± 5 cm H₂O), then immediately drop to zero.
3. If the MTV-100/Manually Triggered Ventilator valve tests out of limits, do NOT use on any patient. Return it to an authorised repair facility.

The accuracy of the test gauge may be checked with a mercury or water manometer (44 mm Hg = 60 cm H₂O). In order to obtain accurate test results, the test lung must be free of cracks, holes or tears.

Recommended Overhaul Period

The MTV-100/Manually Triggered Ventilator should be overhauled every 2 years if periodic testing as outlined above is performed and logged. If periodic testing is not performed, the MTV-100/Manually Triggered Ventilator should be overhauled every year.

Warning

Do not disassemble or tamper with these parts. The warranty is voided if the Exhalation Valve Assembly is tampered with or disassembled. Improper disassembly or assembly procedures may alter the performance of the MTV-100/Manually Triggered Ventilator which could cause a serious injury to a patient. In case of malfunction, return the device to an authorised repair facility.