

# Equinox<sup>®</sup> II

## NITROUS OXIDE/ OXYGEN 50%/50% ADMINISTRATION SYSTEM

**01EQ7000E  
DEMAND VALVE 01EQ7001E**



### MANUFACTURERS AND DISTRIBUTORS OF:

- O-Two eSeries Electronic Transport Ventilators
- O-Two Single Use Open CPAP Systems
- O-Two CAREvent<sup>®</sup> Range of Automatic Transport Ventilators
- O-Two CAREvent<sup>®</sup> Range of Automatic Resuscitators
- O-Two SMART BAG<sup>®</sup> MO “Controlled Flow” Manual Resuscitators
- O-Two Oxygen Demand Valve and Demand Valve Resuscitators
- O-Two Pressure Regulators
- O-Two Equinox<sup>®</sup> II 50% N<sub>2</sub>O/50% O<sub>2</sub> Analgesic Gas Delivery System
- O-Two Equinox<sup>®</sup> Relieve 50% N<sub>2</sub>O/50% O<sub>2</sub> Analgesic Gas Delivery System
- O-Two Equinox<sup>®</sup> Advantage Adjustable Analgesic Gas Delivery system
- O-Two First Response CPR Devices

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“Controlled Ventilation”

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## USER MANUAL

Made in Canada by  
O-Two Medical Technologies Inc.  
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## 4. REPLACEMENT PARTS/ ACCESSORIES

01EQ7001E	Equinox® II Demand Valve
01RE05S10-B	Equinox® Pressure Regulator
02FM4999-Cs	Universal Face Mask (case/12)*
17MP1329	Equinox® II 7' Supply Hose
01EQ7006	Equinox® II Demand Valve Bleed Pin with Chain
17MP1528	Silicone Diaphragm
17MP1320-Equinox	Supply Fitting assembly
17MP9039	Non-rebreathing Valve Assembly
17MP1100-90DEG	90 DEG. Non-rebreathing Valve Cap
01CV8015-Cs	O-Two Deluxe Disposable Ventilation Circuit with PEEP Port (case/10)
01CV8028-Cs	O-Two Single-use Analgesia Patient Circuit with Scavenger Hose and Adapter (case/10)

\* Other sizes and seal types are available. Contact your nearest O-Two Medical authorized distributor for a complete catalogue on all O-Two Medical manufactured products.

## CLEANING/ DISINFECTION PROCEDURE

1. Ensure that the cylinder is turned off (completely clockwise) and bleed any remaining gas out of the gas supply hose.
2. Remove the facemask from the Equinox® II Demand Valve, and then disconnect the demand valve from the regulator. The regulator can be cleaned with a clean soft cloth.
3. Unscrew patient valve (A) from the unit body being careful to ensure that the diaphragm (B) is retained (Fig1).
4. Remove the diaphragm and anti-entrainment ring (C) from the patient valve swivel housing and wash these components thoroughly in a mild soap solution;
5. Disinfect the face mask, patient valve and diaphragm using commonly available cold chemical disinfecting solutions. Rinse thoroughly with water after disinfection.
6. Sterilization, if required, may be achieved by other methods compatible with the materials of manufacture of these components including Ethylene Oxide Gas and Cidex.
7. The demand valve body (D) and gas supply hose can be wiped over with a soft cloth and mild soap solution and may be disinfected using a hard surface disinfectant that is compatible with aluminium.
8. Dry all components thoroughly.
9. Re-assemble and check performance.

### WARNING:

Do not immerse the demand valve unit or the pressure regulator into cleaning solution or disinfectant.

Discontinue use and discard the face mask, the patient valve and the diaphragm should discoloration or deterioration be observed.

## 1. INTRODUCTION

### 1.1 Equinox® II ADMINISTRATION SYSTEM

The Equinox® II Administration System is intended for administration of 50%/50% N<sub>2</sub>O/O<sub>2</sub> analgesic gas mixture and is specifically designed for use in emergency and obstetric analgesia.

The Equinox® II Administration System consists of a demand valve, a single stage pressure regulator, a supply hose and a universal patient face mask. It can be operated anywhere 50% Nitrous Oxide/50% Oxygen mixture cylinders are available.

The Equinox® II Demand Valve is lightweight, portable, and extremely durable and is intended to administer 50%/50% N<sub>2</sub>O/O<sub>2</sub> analgesic gas on patient's demand.

The pressure regulator is intended to lower the high, variable cylinder pressure to a lower constant working pressure for the Demand Valve.

**Note:** Only those individuals trained in the administration of Nitrous Oxide/Oxygen mixtures should use this equipment. Thoroughly review the instruction manual before use.

### 1.2 WARRANTY

Equinox® II Administration System 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 Equinox® II Administration System 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 device 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 device 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 which may vary according to local regulations.

### 1.3 SAFETY PRECAUTIONS

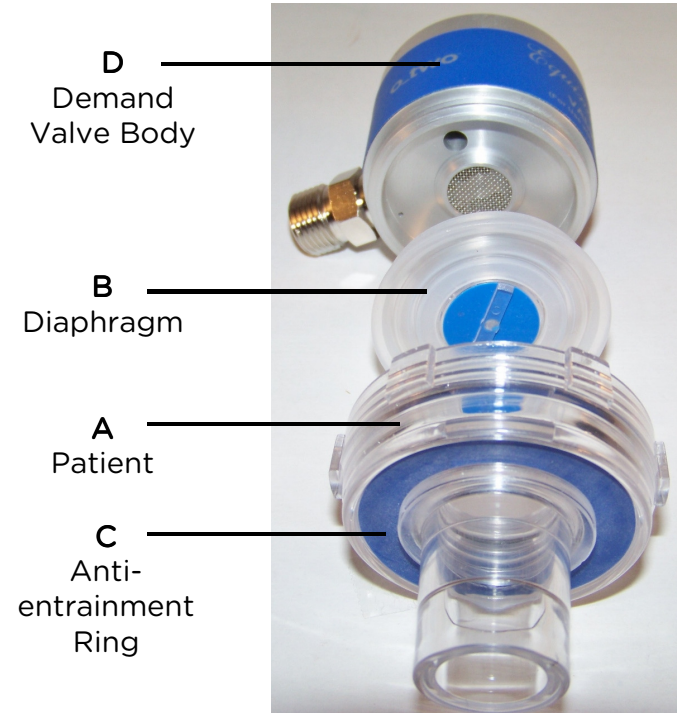
The Equinox® II Administration System is intended for use by suitably trained and qualified personnel.

The following precautions should always be observed:

1. **CAUTION:** FEDERAL LAW IN THE U.S.A. RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A LICENSED PRACTITIONER.
2. WHEN THE UNIT IS IN USE, DO NOT SMOKE OR USE NEAR OPEN FLAME EITHER DURING USE OR WHEN CHANGING THE CYLINDER.
3. WHEN NOT IN USE, ALWAYS TURN OFF THE CYLINDER.
4. NEVER ALLOW OIL OR GREASE TO COME INTO CONTACT WITH ANY PART OF THE CYLINDER, REGULATOR OR DEMAND VALVE.
5. DO NOT DISASSEMBLE ANY PART OF THE DEMAND VALVE EXCEPT WHERE DESCRIBED IN THIS MANUAL AS ANY UNAUTHORIZED DISASSEMBLY WILL INVALIDATE THE WARRANTY.
6. AFTER USE, ALWAYS ENSURE THAT ALL COMPONENTS ARE CLEANED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED IN THIS MANUAL.
7. ALWAYS USE THE CHECK LIST TO ENSURE THAT ALL COMPONENTS ARE REASSEMBLED CORRECTLY AND READY FOR USE.
8. AFTER USE, ALWAYS ENSURE THAT A FULL GAS CYLINDER IS ATTACHED BEFORE RETURNING THE UNIT TO ITS NORMAL STORAGE POSITION.

### 3.2 CLEANING AND DISINFECTION

Routine cleaning and/or disinfection of the O-Two Medical Equinox® II Administration System should be undertaken after each patient use to maintain the equipment in a clean condition.



**Fig.1**

sterilization, after each patient use, of the patient valve and diaphragm attached to the demand valve.

It is recommended that the demand valve is cleaned and disinfected externally using a hard surface disinfectant suitable for use with the materials of manufacture.

**NOTE:** The use of a patient circuit with the Equinox® II demand valve may increase the patient's inspiratory work of breathing.

### 3. SERVICING

#### 3.1 ROUTINE MAINTENANCE

**WARNING:**

The Equinox® II Administration System is designed to provide years of reliable service in all emergency situations. Failure to follow the maintenance and inspection routines properly could result in incorrect operation of the demand valve.

To ensure proper operation of the Equinox® II Administration System, regular inspection and checking of the demand valve and accessories for correct function should be undertaken by a responsible member of staff on a regular basis.

This check is to ensure that all of the accessories and demand valve components are present, the gas mixture cylinder is full and that the demand valve is in working order.

#### MAINTENANCE

Function parameters 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. O-Two Medical products are not designed for field disassembly or service outside that indicated in this manual.

Any malfunctioning units should be returned to the manufacturer or an Authorized O-Two Medical Technologies Dealer. Unauthorized repairs will nullify the product warranty.

## 1.4 PERFORMANCE SPECIFICATION

### Demand Valve

(Minimum) Peak Flow rate.....	140 L/min
Exhalation Resistance .....	0 to 6 cmH <sub>2</sub> O @ 60 L/min
Inhalation Resistance .....	0 to -6 cmH <sub>2</sub> O @ 60 L/min
Input Pressure.....	50 PSI
Initiation Pressure.....	-2 to -2.5 cmH <sub>2</sub> O
Operating Temp.....	-18°C to 50°C (0°F to 122°F)
Storage Temp.....	-40°C to 60°C (-40°F to 140°F)
Input Connection.....	5/8"-18 TPI
Patient Connector.....	15/22 mm
Weight.....	0.21 Kg (7.4 oz)
Dimensions (inches).....	Dia. 51mm x 81mm (2.0" x 3.2")

### Pressure Regulator

Inlet Connection.....	CGA 965 N <sub>2</sub> O/O <sub>2</sub> Pin Indexed Yoke
Outlet Connector.....	5/8" Thread
Operating Pressure.....	500 -3000 PSI
Output Pressure.....	50 -60 PSI
Weight.....	0.45 Kg (1.0 lb)

## 2. OPERATING PROCEDURE

### 2.1 DEMAND BREATHING

The O-Two Medical Equinox® II Demand Valve is designed to operate on compressed Nitrous Oxide/ Oxygen gas. It is intended to provide 50/50% Nitrous Oxide/ Oxygen mixture to the patient at a safe delivery pressure and adequate flow rate upon demand.

An inspiratory effort by the patient will activate the demand valve and Nitrous Oxide/ Oxygen will flow to the patient at a rate and volume in line with their inspiratory effort.

### 2.2 OPERATING INSTRUCTIONS

1. Ensure that the Equinox® II Demand Valve/Regulator connection is secured and no leaks present.
2. Turn the cylinder hand wheel counter clockwise to the ON position (at least one full turn).
3. Ensure that the regulator contents gauge reads at least 500 psi. If not, replace with a full cylinder.
4. Attach the Universal Facemask to the Equinox® II Demand Valve outlet.
5. Instruct the patient in its operation. Most protocols require the gas mixture be self-administered by the patient to prevent inadvertent excessive administration by an attendant.
6. To trigger the demand valve and obtain an adequate flow of gas, it is necessary to make a good mask to face seal. Simply place the mask on the patient's face, covering both the nose and mouth. Instruct the patient to hold the mask on his/her face with a light pressure and breath normally. The sound of gas flowing should be heard with each inspiration. If not, adjust the patient's hold on the mask for a better seal and ask the patient to breath more deeply.

7. Continue administration as per local management protocol.
8. Ensure that the cylinder is turned OFF after each use and remaining gas released from the system by placing the bleed pin attached to the regulator into the center hole on top of the Equinox® II Demand Valve and depress until gas flow ceases.

### 2.3 SCAVENGING OF WASTE NITROUS OXIDE/ OXYGEN USING THE SCAVENGER ADAPTER

To scavenge exhaled air from the patient during inhalation analgesia a scavenging system must be employed. There are three options for exhaled gas scavenging:

[1] A scavenger adapter (17MP1100-900DEG) may be fitted on the Equinox® II demand valve and a scavenging tube can then be attached to the 30mm outlet of the one way valve to divert the exhaled gas to the exhaust system. The optional Scavenger Adapter is designed to replace the Non-rebreathing Patient Valve assembly.

[2] A patient circuit with scavenger adapter (01CV8015) maybe used which is attached to the 15/22mm port of the Equinox® II demand valve and a scavenging tube can then be attached to the 30mm outlet of the one way valve on the circuit to divert the exhaled gas to the exhaust system.

[3] A complete scavenging circuit (01CV8028) can be used attached to the 15/22mm outlet of the Equinox® II demand valve and the expiratory tube can then be attached to the exhaust system.

#### NOTE:

The 30 mm exhalation port meets the requirements of the International Standards for Conical Connectors for Low Pressure Medical Gas Systems and will allow the attachment of corrugated tubing so that the patient's exhaled breath can be scavenged from the exhalation valve to the exhaust method chosen by the facility using the device.

The use of a patient circuit with the Equinox® II demand valve isolates the patient's exhaled breath from the demand valve. This negates the need for the cleaning and