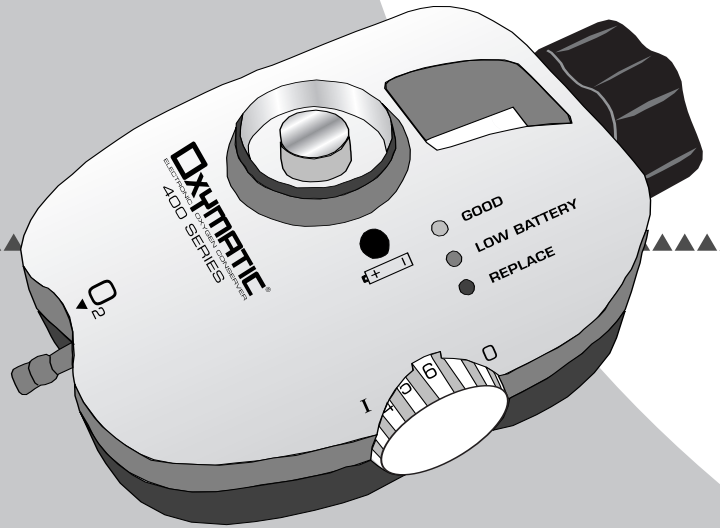
CHAD THERAPEUTICS

PRODUCT INFORMATION AND INSTRUCTIONS



MODEL 400 SERIES

OXYMATIC®
ELECTRONIC OXYGEN CONSERVER

CE 0197

TABLE OF CONTENTS

GENERAL INFORMATION

This manual provides information necessary to operate the OXYMATIC 400 Series electronic oxygen conserver with built-in regulator in accordance with a physician's prescription.

The OXYMATIC® 400 Series conserver can be used with any post-valve cylinder (see Fig. A) at home or away from home to provide your specific oxygen requirements. It requires one (1) 1.5 volt, C-size alkaline battery for operation.

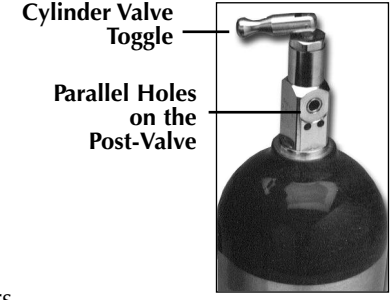


FIGURE A
Post-Valve Cylinder

Statements in this manual preceded by the following words are of special significance:

WARNING
Indicates there is a possibility of injury to you or others.

CAUTION
Indicates there is a possibility of damage to the device or to other property.

NOTE
Indicates points of particular interest or emphasis that allow for more efficient and convenient operation of the equipment.

IMPORTANT SAFETY RULES & PRECAUTIONS

WARNING:

- Read and understand this manual before operating your OXYMATIC 400 Series electronic oxygen conserver.
- This device is not intended for use during sleep or by patients who:
  - Breathe more than 40 breaths/minute.
  - Consistently fail to trigger equipment (i.e., mouth breathe).

Smoking near oxygen equipment is strictly prohibited. Keep cigarettes, matches, burning tobacco, and open flames such as lighted candles away from the area where the system is being stored or operated.

- Avoid creation of any spark, such as static electricity caused by any type of friction, near the oxygen equipment.

☛ **NOTE: Oxygen will not burn; however, it does vigorously accelerate the burning of any flammable material.**

- Never use oil, grease, or petroleum-based products on or near the system. Please wash and dry your hands properly prior to operating your oxygen equipment.
- Never use aerosol sprays near the equipment.
- Not suitable for use in the presence of flammable anesthetic mixture.
- Keep your oxygen equipment at least 5 ft. (1.5 m) away from any electrical appliance.
- Be sure to turn off oxygen supply by closing the cylinder valve when not in use.
- Use cannula tubing no longer than 7 ft. (2.13m).
- Do not use mask, pediatric, or other low-flow cannula tubing when operating the unit.

IMPORTANT SAFETY RULES & PRECAUTIONS

CAUTION:

- Federal (U.S.A.) law restricts this device to sale by or on the order of a physician.
- Prevent water or other liquid substances from entering the unit.
- Prevent dust or any small particles from entering the unit.
- Do not expose the unit to extreme temperatures.
- Be sure to carry an extra C-size **alkaline** battery in the event it is needed.
- Always maintain a backup supply of oxygen.
- Do not use humidifier bottles.
- Do not use if leaking or damaged.
- Refer repairs to authorized service personnel.

☛ **NOTE: Oxygen supplied by this equipment is supplemental only and is not intended for life support applications.**

Please contact your Home Care Provider,
if you have any questions.

INTRODUCTION

The OXYMATIC 400 Series electronic oxygen conservers include a combination of a low-pressure regulator and an oxygen conserver, designed for use with ambulatory oxygen systems. They are capable of delivering a precise amount of supplemental oxygen at the optimal point in the breathing cycle. Operationally, the OXYMATIC 400 Series conservers greatly increase efficiency in the delivery of oxygen, maximizing the beneficial effects and eliminating unnecessary oxygen waste.

When we breathe, approximately one-third of the time is spent inhaling and two-thirds exhaling. As a result, oxygen delivered by continuous flow is wasted during exhalation. By eliminating oxygen flow during exhalation, a two-thirds savings is possible. Additionally, the oxygen available during the very first part of inhalation contributes most to meeting oxygen needs. The OXYMATIC 400 Series conservers take advantage of these facts to provide maximum efficiency in the delivery of oxygen. This device is designed to be an integral component of a lightweight, long-lasting ambulatory oxygen system.

DESCRIPTION OF PARTS & CONTROLS

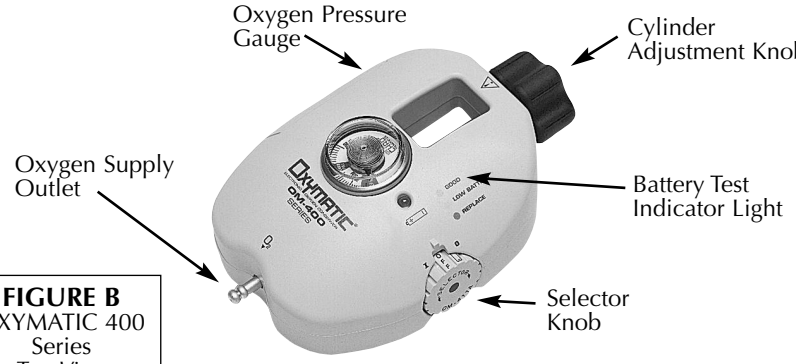


FIGURE B
OXYMATIC 400 Series
Top View

- **Battery Test Indicator:** The OXYMATIC 400 Series conserver incorporates a visual indicator light (multi-color LED) that monitors the battery energy level inside the unit by displaying three colors.
    1) **Green**- adequate battery energy level for operation.
    2) **Amber** - lower battery energy level but still in the operational range.
    3) **Red** - low battery energy level. A spare C-size **alkaline** battery should be readily available.
    4) **Flashing Red** - Replace battery immediately.
- **Cylinder Adjustment Knob:** This is used to attach the unit to any post valve cylinder.

DESCRIPTION OF PARTS & CONTROLS

- **Selector Switch:** This enables the user to select the prescribed setting (1-6). It also enables the user to monitor the battery energy level. When not in use, the switch should be turned to the "OFF" position.
- **Battery Holder:** This compartment holds one (1) C-size alkaline battery.
- **Oxygen Pressure Gauge:** This enables the user to monitor the contents of the compressed oxygen cylinder.
- **Oxygen Supply Outlet:** Use this fitting to attach a standard cannula.
- **Cylinder Alignment Pins:** When assembling the unit, these parallel pins must go in the holes on the post-valve.
- **CGA Seal *(Gasket, FR-870G, brass and viton)* or equivalent:** This creates the interface between the post-valve and the OXYMATIC 400 Series conserver. Besides offering a rugged interface, it also surrounds the oxygen path in a ring of stainless steel or brass.

WARNING: Use only a manufacturer specified gasket.

- **Bypass Switch:** This is a pneumatic switch that enables the user to switch from pulse mode (oxygen delivery on demand) to continuous flow mode (preset at 2 lpm) in the unlikely event of unit malfunction. Continuous flow mode is not powered by the battery and can be utilized without one.

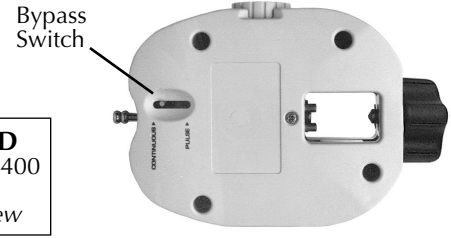


FIGURE D
OXYMATIC 400
Series
Bottom View

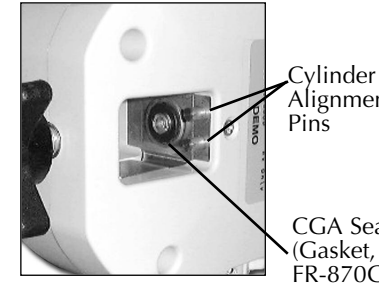


FIGURE C
OXYMATIC 400
Series
Bottom View

☛ **NOTE: Remember that in this mode the oxygen will be consumed at a much faster rate. Return to another source before depleting the oxygen cylinder.**

CAUTION: The Bypass Switch is designed for emergency use only. In the event that it is necessary to operate the unit in this continuous flow mode, **DO NOT** obstruct the flow of oxygen from the Oxygen Supply Outlet by placing your finger over the outlet or blocking the flow through the oxygen tubing in any way. Doing so may render the unit inoperable and/or damage the sensor in the unit.

☛ **NOTE: Models 401, 401A, and 411A are permanently preset at 2 lpm. Model 411AF is factory preset at 2 lpm and adjustable between .5 and 6 lpm by your home care provider.**

ASSEMBLY AND USE

- Make certain that your hands are free of oil, grease, and other contaminants.
- Inspect the unit to insure that it has a CGA 870 brass and viton (or equivalent) gasket in good working condition attached to the inlet nozzle.
- Secure the cylinder in an upright position.
- Inspect the post-valve of the cylinder and the OXYMATIC 400 Series conserver to ensure they are free of contaminants. If any indication of damage or contamination is detected, DO NOT use the equipment and contact your Homecare Provider.

WARNING: Use ONLY a manufacturer specified gasket. Other gaskets may not be oxygen compatible and may cause an oxygen leak, creating an increased fire risk.

NON-PORTABLE USE:

The OXYMATIC 400 Series conserver is designed to extend the life of portable oxygen supplies when away from the primary source. While the OXYMATIC 400 Series conserver may be used with stationary oxygen sources, the unit should be used only while awake and reasonably attentive. The OXYMATIC 400 Series conserver is not intended for use while asleep because in the unlikely event of operational malfunction or dislodging of the cannula the user could be unaware and not make the necessary corrections. If a unit is required for use during sleep, the LOTUS Model 700S (with alarm) should be used.

INSTALLING THE BATTERY:

- While holding the unit with one hand, press in and lift up on the battery holder latch.
- Press the battery into the slot, making sure it is placed over the battery release strap and inserted in the proper direction [Fig. E]. The battery should fit snugly into the unit. Be sure that the battery makes firm contact at the positive (+) side.

FIGURE E
Installing the battery

☛ **NOTE: The OXYMATIC 400 Series conserver is packaged with a battery inside. A special seal is used at the positive terminal to prevent battery oxidation. If it has not already been removed by your Homecare Provider, be sure to remove the seal when using the unit for the first time.**

- Close the battery holder cover by snapping it back into place.
- Verify battery is charged by turning the selector switch to the "BATT" position.

☛ **NOTE: The battery indicator light is inoperative except when the selector switch is in the "BATT" position; however, the red light will flash in any setting if the battery needs to be replaced. Always check the battery energy level before using. With normal use of 8-12 hours per day, a battery should last about 4 weeks.**

ASSEMBLY AND USE

INSTALLING THE SYSTEM:

- Loosen the cylinder attachment knob.
- Lower the OXYMATIC 400 Series conserver over any post-valve cylinder with the alignment pins toward the holes on the cylinder neck [Fig. F].
- Line the two pins and gasket with the corresponding holes on the cylinder post valve.
- While holding the unit in place, tighten the cylinder adjustment knob by turning clockwise [Fig. F].
- Attach a standard cannula to the oxygen supply outlet.

FIGURE F
Attaching the OXYMATIC 400 Series conserver to the cylinder

☛ **NOTE: Tighten only by hand. The use of a tool to tighten the knob may damage the unit.**

CAUTION: If you are unable to eliminate leaks by manually tightening the cylinder adjustment knob, replace the CGA 870 gasket. If leaks persist, the unit must be returned for service.

OPERATING INSTRUCTIONS:

- Make sure the bypass switch is set to Pulse Mode.
- To reduce the risk of rapid oxygen recompression and fire, open the cylinder valve slowly and completely so that the pressure gauge moves slowly as it indicates the cylinder pressure.
- Listen for leaks. If a leak is present, close the cylinder valve, check the CGA seal, and reinstall. If the leak persists, **DO NOT USE THE EQUIPMENT**. Contact your supplier for repair.

OPERATING INSTRUCTIONS *continued*:

- Turn the setting selector knob to the "BATT" position. Check the battery indicator:
  1) **Green** - Good
  2) **Amber** - Consider replacing the battery.
  3) **Red**, **Flashing Red**, or **No Indicator** - Replace the battery.
- Select the setting on the OXYMATIC 400 Series conserver (1-6) that corresponds to the appropriate delivery setting.
- Place the nasal cannula into position with the prongs in the nostrils and begin breathing.

The OXYMATIC 400 Series conserver will now start to deliver the oxygen. The frequency of delivery is determined by the setting and the model number. A pulse of oxygen will not necessarily be delivered with every breath (see tables 1 and 2 on page 13 for specific oxygen delivery specifications). A "click" sound may be heard each time the unit delivers a pulse of oxygen. Adequate oxygen delivery will be achieved because of the precise time in the breathing cycle that the pulse of oxygen is delivered.

☛ **NOTE: To help prevent possible damage to the unit, keep the OXYMATIC 400 Series conserver in its carrying bag. Figure G shows the OXYMATIC 400 Series carrying bag designed for use with M6(B) (164 liters) cylinder or M9(C) cylinder (246 liters).**

FIGURE G
Carrying Bag

- When finished using the system, turn off the oxygen supply cylinder valve and continue breathing through the nasal cannula until no further oxygen is detected.
- Remove the nasal cannula and turn the selector switch to the "OFF" position.
- When not in use, store in a clean, dry location.

OXYGEN CYLINDER DURATION

Because the total delivery of oxygen via the OXYMATIC 400 Series conserver is related to breathing rates, it is user adaptive in that total oxygen delivered per minute will automatically adjust with user need - as expressed by increased or decreased breathing rates. For example, at all settings twice as much oxygen per minute will be delivered if one breathes twenty (20) times per minute as compared with ten (10) times per minute. Table 1 provides useful information to be used as a guide. (Please refer to your specific OXYMATIC model number for device specifications.)

TABLE 1

	SETTING	1	2	3	4	5	6	Continuous
OM-401/401A Alternate Breath Delivery	PULSE DELIVERY	1	2	3	EVERY BREATH			N/A
	DELIVERY VOLUME	40 ml	40 ml	40 ml	40 ml	50 ml	60 ml	2 lpm
OM-411/411A/ 411AF Every Breath Delivery	PULSE DELIVERY	EVERY BREATH						N/A
	DELIVERY VOLUME	10 ml	20 ml	30 ml	40 ml	50 ml	60 ml	2 lpm
CYLINDER TYPE	**CYLINDER VOLUME**	**Estimated Cylinder Duration in Hours (Based on 20 breaths/min)**						
M2	36 liters	3.0	1.5	1.0	0.8	0.6	0.5	0.3
M4(A)	113 liters	9.4	4.7	3.1	2.4	1.9	1.6	0.94
M6(B)	164 liters	13.7	6.8	4.6	3.4	2.7	2.3	1.3
ML6	171 liters	14.3	7.1	4.8	3.6	2.9	2.4	1.4
M9(C)	246 liters	20.5	10.3	6.8	5.1	4.1	3.4	2.1
D	425 liters	35.4	17.7	11.8	8.9	7.1	5.9	3.5
E	680 liters	56.7	28.3	18.9	14.2	11.3	9.4	5.7

CARE AND MAINTENANCE

The OXYMATIC 400 Series conservers are designed for a long and accurate life; however, as with any electronic device, normal prudent care is required. The units should be kept clean and free from moisture and dust, as well as extreme temperature. Do not expose the unit to water, such as when bathing or swimming. It is advisable to keep the device in its carrying bag to afford a degree of protection. Clean the outside covers periodically by wiping with a lint-free cloth. Pay special attention to the oxygen inlet and outlet to make sure they remain free of dust, etc. If the oxygen inlet connection (CGA-870) becomes contaminated with dirt, oil or grease, DO NOT USE OR ATTEMPT TO CLEAN. Contact your supplier for service or repair.

Cannula tubing is a disposable accessory that should be replaced periodically following normal usage. Disposable tubing should be disposed of in accordance with local ordinances and/or regulations for disposal. Replacements are available through your Homecare Provider.

Clean the carrying bag using mild detergent, cold water, and a small scrub brush. Wet the brush and lightly scrub the bag with it. Be careful not to scrub the plastic window. When finished cleaning, rinse with fresh, cold water. Repeat cleaning, if necessary. Hang bag and let air dry. **Do not hang in direct sunlight.**

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
Unit does not pulse.	Dead battery.	Replace battery.
	Battery installed incorrectly (reversed).	Make sure battery polarity is correct.
	Dirty battery holder contacts.	Remove the battery. Use alcohol and a cotton swab to clean both contacts.
	Cylinder valve is closed.	Turn the cylinder valve to the "ON" position.
	Cylinder is empty.	Check the oxygen gauge. Replace the cylinder, if empty.
	Oxygen cannula is blocked or kinked.	Remove kinks. Clean or replace, if necessary.
Short battery life.	Non-alkaline battery is used.	Make sure the battery inside the unit is alkaline. Energizer®, Ray-O-Vac®, or Duracell® batteries are recommended.

Non-functioning units are subject to warranty provisions and the manufacturer repair/return policy. If necessary, call your Home Care Provider.

☛ **NOTE: Do not attempt to open the electronic compartment of the unit. If the case is opened or tampered with, the warranty is void.**

CLASSIFICATIONS

The OXYMATIC Model 400 Series is classified as:

- Internally Powered Equipment - IEC 601-1 and EN 60601-1.
- Ordinary Equipment - Enclosed equipment without protection against ingress of water, IEC 601-1 and EN 60601-1.
- Not suitable for use in the presence of flammable anesthetic mixture with air or with oxygen or with nitrous oxide.
- Complies to IEC 601-1-2 Electromagnetic testing.
- Type BF equipment.

SPECIFICATIONS

Oxygen Delivery:

OM-401/401A			OM-411/411A/411AF		
Switch Position	Delivery Volume	Pulse Delivery	Switch Position	Delivery Volume	Pulse Delivery
1	40	1of 4 breaths	1	10	Every breath
2	40	Every other breath	2	20	Every breath
3	40	3 of 4 breaths	3	30	Every breath
4	40	Every breath	4	40	Every breath
5	50	Every breath	5	50	Every breath
6	60	Every breath	6	60	Every breath

Continuous Flow: 2.0 ± .5 l/min (Adjustable between .5 and 6 l/min on OM-411AF only)

Pressure: 200 psi to 3000 psi

Regulator: Built-in, 25 ± 5 psi
- OM-401/411 - all brass
- OM-401A/411A/411AF - brass high pressure internal with an aluminum body

Voltage: 1.03V to 1.65V

Battery: 1.5 VDC Alkaline C-size

Battery Indicator:

Green: 1.65 - 1.4 VDC
Amber: 1.4 - 1.2 VDC
Red: 1.2 - 1.03 VDC
Flashing Red: <1.03 VDC

Power Consumption: <20 mA at idle time and maximum of 600 mA during delivery time

Dimensions: Approx. 6 in. L x 2 in. H x 4 in. W (15cm L x 5 cm H x 10cm W)

Weight: OM-401/411 - Approx. 1.7 lbs (771 grams) without battery and approx. 1.8 lbs (816 grams) with battery

OM-401A/411A/411AF - Approx. 1.0 lbs (454 grams) without battery and approx. 1.1 lbs (499 grams) with battery

SPECIFICATIONS

Operating Temperature:	0°C to 50°C (32°F to 122°F)
Operating Relative Humidity:	15% to 95%
Operating Altitude:	0 to 10,000 feet
Storage/Transportation:	
Cold temperature:	Maximum -40°F (-40°C), 1% RH
Hot temperature:	Maximum 145°F (63°C), 44% RH
Shock:	Not to exceed IEC 601-1 requirements
Vibration:	Not to exceed IEC 68-2-6, IEC 68-2-34

SYMBOLS KEY:

 : No smoking or open flames

 : Consult accompanying documents

 : System ON

 : System OFF

 : Type BF equipment

CE 0197

TÜV Rheinland Product Safety

EMV EMC

LIMITED WARRANTY

The OXYMATIC electronic oxygen conserver has been carefully manufactured and inspected and is warranted to be free from defects in workmanship and materials. Under this warranty, CHAD Therapeutics, Inc.'s obligation shall be limited to the replacement or repair of any such units or parts that prove, by CHAD's inspection, to be defective within two years from the date of purchase. Any abuse, operation other than the intended use of the product, negligence, accident or repair by other than authorized service professionals shall immediately void this warranty. This warranty does not extend to the cannula or battery.

CHAD Therapeutics will not accept damages or charges for labor, parts or expenses incurred in making field repairs, except upon written authorization prior to such action.

The foregoing warranty is exclusive and in lieu of all other express warranties. Implied warranties, if any, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, shall not extend beyond the duration of the express warranty provided herein. In no event shall CHAD Therapeutics be liable for loss of use or profit or other collateral, special or consequential damages.

IMPORTANT INFORMATION TO RECORD

Your Name: _____

Date you received your unit: _____

Prescribed oxygen flow setting:

- At rest:_____
- During exercise:_____

Home Care Provider's Name:_____

Home Care Provider's Phone Number: (_____)_____

Physician's Name:_____

Physician's Phone Number:(_____)_____

Notes:_____

_____

_____

CHAD®
THERAPEUTICS

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