



**PRODUCT
INFORMATION
AND INSTRUCTIONS**

OM-700

OM-700S

LOTUS[®]
electronic oxygen conserver





TABLE OF CONTENTS

General Information	3
Important Safety Rules and Precautions	
<i>Operating the Unit</i>	4-6
<i>Accessories/Repairs</i>	6
Introduction	
<i>Purpose</i>	7
<i>User Qualification</i>	7
<i>Function</i>	8
Description of Parts and Controls	9-11
Assembly and Use	
<i>Non-Portable Use</i>	12
<i>Installing Alkaline Batteries</i>	13
<i>Installing the Battery Pack</i>	14
<i>Installing the System</i>	15
<i>Charging the Battery Pack (rechargeable NiMH Battery Pack)</i>	16
<i>Charging the Battery Pack (full charge)</i>	17-18
<i>Operating Instructions</i>	19
<i>Alarm Operation</i>	20

TABLE OF CONTENTS

Oxygen Cylinder Duration	21
Care and Maintenance	
<i>Hygienic Preparation</i>	22
<i>Intervals</i>	22
<i>Procedure</i>	23
<i>Patient Change</i>	24
<i>Functional Check</i>	25
<i>Disposal</i>	26
Products, Spare Parts, Accessories	
<i>Standard Product</i>	27
<i>Spare Parts</i>	27
<i>Accessories</i>	28
Troubleshooting Guide	29-31
Classifications and Specifications	
<i>Technical Data</i>	32-34
<i>Separation Distances</i>	35
<i>Symbols Key</i>	36
Limited Warranty	37
Important Information to Record	38
Notes	39



GENERAL INFORMATION

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

The LOTUS® conserver can be used with any CGA 870 post-valve cylinder (see Fig. A) at home or away from home to provide your specific oxygen requirements. It requires two (2) 1.5 volt AA alkaline batteries for operation, or, it can be used with a rechargeable battery pack that may be purchased separately.

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.

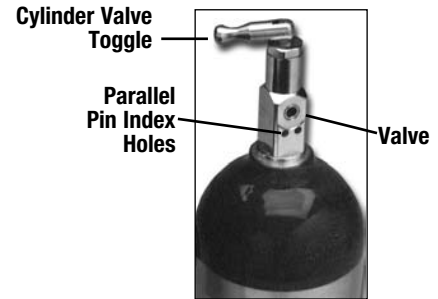


FIGURE A
CGA 870
Post-Valve Cylinder

IMPORTANT SAFETY RULES & PRECAUTIONS

Read this instruction manual carefully to ensure your complete understanding before operating your LOTUS® electronic conserver. This manual is part of the unit and must be available at all times. Use the unit for the designated purpose only (see “Purpose” on page 7).

For your own safety and that of your patients, and in accordance with the requirements of Directive 93/42 EEC, please observe the following points:

OPERATING THE UNIT



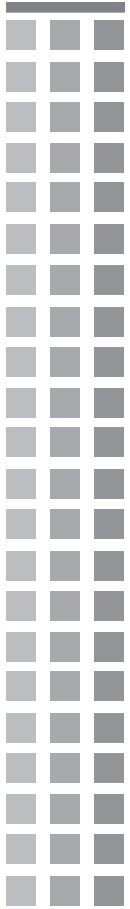
WARNING!

Failure to observe the following warnings may result in damage to the unit or injury to life or limb:



- **Smoking near oxygen equipment is strictly prohibited.** While using your LOTUS®, your clothes may come into contact with oxygen enriched air, making your clothes more flammable. This also applies for a time after use, until the increased oxygen concentration has escaped from the clothing. For this reason, you must keep cigarettes, matches, burning tobacco and open flames, such as lighted candles or fireplaces, away from the area where the system is being stored or operated.
- Avoid the 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.**





IMPORTANT SAFETY RULES & PRECAUTIONS

WARNING! (Cont.)

Please remember that this is for your own safety!

- **Keep all parts free of oil and grease.** Hydrocarbon compounds such as oil, grease, petroleum-based products, cleaning agents containing alcohol, hand cream or adhesive bandages can cause explosive reactions if they come into contact with highly compressed oxygen. Please wash and dry your hands properly prior to operating your oxygen equipment.
- Never use aerosol sprays near the oxygen equipment.
- Do not 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 the oxygen supply by closing the cylinder valve when not in use.
- Do not use cannula tubing that is longer than 7 ft. (2.13 m).
- Do not use a mask or pediatric or other low-flow cannula tubing when operating the unit.

CAUTION!

- Check that your supply voltage corresponds to the voltage required for the charger.
- To prevent the unit from overheating, do not place it near any heating devices and do not expose it to direct sunlight. Do not expose the unit to extreme temperatures.
- Your LOTUS® must not be immersed in liquid or cleaned with liquid agents. Prevent water or other liquid substances from entering the unit.
- Protect your LOTUS® from the cold and from continued exposure to water, such as rain.
- Your LOTUS® is protected against interference. To ensure safety of use, however; do not use a mobile phone in the immediate vicinity of the unit.
- Please observe the section “Hygienic Preparation” on page 22 in order to avoid infection or bacterial contamination.
- Prevent dust or any small particles from entering the unit.
- Take care not to get entangled in the nasal cannula tube, which could impede movement and lead to discomfort around the throat.

IMPORTANT SAFETY RULES & PRECAUTIONS

CAUTION! (Cont.)

- Oxygen conserving systems only work reliably upon sufficiently strong inhalation. Therefore, please observe the following:
 - Do not use the LOTUS® at night or while sleeping;
 - Do not use the LOTUS® for babies or children;
 - Do not use the LOTUS® if you only breathe through your mouth.
- Do not use the LOTUS® if you breathe more than 40 breaths per minute.
- Closely observe the permissible ambient conditions listed in the “Technical Data” section on pages 32-34. Failure to observe them may lead to a fire risk or damage to the unit.
- Tighten all screwed connections by hand only. Do **not** use a tool.
- Do not use the LOTUS® with a humidifier.
- Do not use if leaking or damaged.
- Always open the cylinder valve slowly.
- Be sure to carry extra AA-size alkaline batteries in the event they are needed.

NOTE:

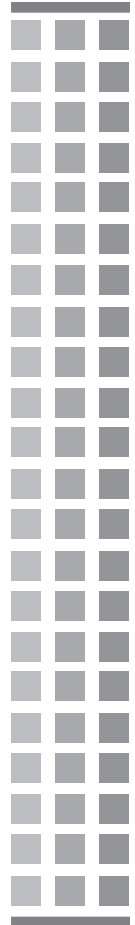
- Always ensure that your oxygen cylinder is sufficiently full. We recommend always keeping a full spare cylinder in reserve.
- **Oxygen supplied by this equipment is supplemental only and is not intended for life support applications.**

ACCESSORIES/REPAIRS

CAUTION!

- Malfunctions and a lack of biocompatibility may result if third-party articles are used. Please bear in mind that in these cases any guarantee entitlement and liability shall lapse where accessories recommended in the instruction manual or original spare parts are not used.
- Servicing and repair work must only be carried out by the manufacturer (CHAD Therapeutics) or by trained personnel. Refer repairs to authorized personnel.

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





INTRODUCTION

PURPOSE

The LOTUS[®] electronic conserver is designed for use as part of a portable ambulatory oxygen system for the purpose of facilitating long-term oxygen therapy (LTOT). It provides mobile LTOT patients with an extended operating time of their mobile system. The LOTUS[®] conserver includes a combination of a low-pressure regulator and an oxygen conserver and is capable of delivering a precise amount of supplemental oxygen at the optimal point in the breathing cycle. Operationally, the LOTUS[®] conserver greatly increases efficiency in the delivery of oxygen, maximizing the beneficial effects and eliminating unnecessary oxygen waste.

The LOTUS[®] is not suitable for use during sleep.

The LOTUS[®] is not suitable for children.

Use the unit exclusively for the purpose described above.

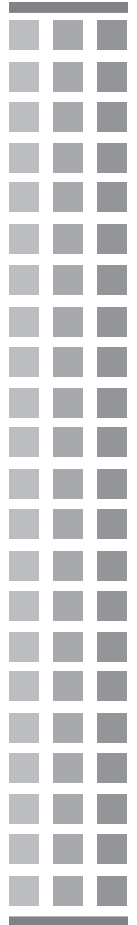
USER QUALIFICATION

Prior to beginning therapy, patients must be given instruction by qualified personnel on how to use the unit.


INTRODUCTION


FUNCTION

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 application of the LOTUS® is based on the fact that only oxygen inhaled at the beginning of the breath actually reaches the alveoli and is absorbed by the body. The oxygen inhaled during the remainder of the breath is not used and is exhaled again. For this reason, the LOTUS® only administers oxygen at the beginning of inhalation. This makes the oxygen source last longer. The LOTUS® is designed to be an integral component of a lightweight, long-lasting ambulatory system.



DESCRIPTION OF PARTS & CONTROLS

- **Battery Test Indicator Light:** The LOTUS® conservers incorporate 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 operational range.
 - 3) **Red** - low battery energy level. Two (2) spare AA-size alkaline batteries, an extra, fully-charged battery pack or access to a recharger should be readily available.
 - 4) **Flashing Red** - Replace batteries immediately.
- **Cylinder Adjustment Knob:** This is used to attach the unit to any CGA 870 post-valve cylinder.
- **Selector Knob:** This enables the user to select the prescribed oxygen flow setting. 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 two (2) AA-size alkaline batteries or one (1) rechargeable NiMH battery pack (RB-100).
- **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:** This creates the interface between the valve and the LOTUS® conserver. Besides offering a rugged interface, it also surrounds the oxygen path in a ring of stainless steel or brass.
- **Oxygen Inlet Connection:** Interface between cylinder valve and conserver that allows oxygen to flow into the regulator.
- **Battery Charger Connector Port:** This port allows the user to charge the rechargeable NiMH battery pack from a standard AC outlet. (Requires the use of an optional manufacturer-specified rechargeable battery pack, charger, and adapter. See the “Accessories” section on page 28 for details.)
- **Charger Indicator:** This visual indicator light (green LED) indicates when the rechargeable battery pack is being charged. This light will also come on if the selector knob is set to battery position () when using the NiMH battery pack.

 **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.

DESCRIPTION OF PARTS & CONTROLS

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

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




FIGURE D
Close-up of Bypass Switch

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:** The continuous flow function on the LOTUS® conserver is factory preset at 2 lpm. It can be adjusted between 0.5 and 6 lpm by your Home Care Provider.

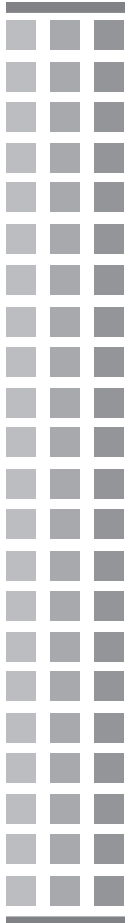
ASSEMBLY AND USE

- 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 or stainless steel (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 LOTUS® 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 Home Care 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 LOTUS® conservers are designed to extend the life of portable oxygen supplies when away from the primary source. While the LOTUS® conservers may be used with stationary oxygen cylinders, they should be used only while awake and reasonably attentive.



ASSEMBLY AND USE

INSTALLING ALKALINE BATTERIES:

(Standard AA batteries)

STEP 1: While holding the unit with one hand, press in and lift up on the battery holder door latch.

STEP 2: Press the batteries into the slot, making sure they are placed over the battery release strap and inserted in the proper direction [Fig. E]. They should fit snugly into the unit. Be sure that the batteries make firm contact at the positive (+) side.

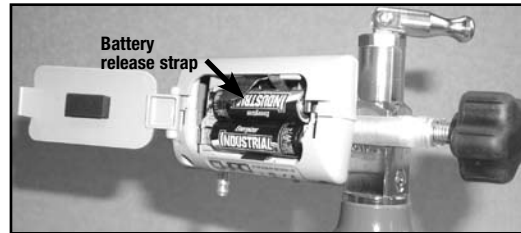


FIGURE E
Installing AA alkaline batteries

NOTE: The LOTUS® conserver is packaged with batteries inside. A special seal is used at the positive terminal to prevent battery oxidation. If it has not already been removed by your Home Care Provider, be sure to remove the seals before using the unit for the first time.

STEP 3: Close the battery holder cover by snapping it back into place.

STEP 4: Verify the battery level by turning the selector knob to the battery position (☐←+).

NOTE: The battery indicator light is inoperative except when the selector knob is in the battery position (☐←+); however, the red light will flash in any setting if the batteries need to be replaced. Always check the battery energy level before using. With normal use of eight (8) hours per day at setting two (2), a battery should last approximately six (6) months.



Disposal of Batteries/Battery Pack: Do not dispose of used batteries/battery packs in the household waste. Contact your distributor or a public waste disposal authority.

ASSEMBLY AND USE

INSTALLING THE BATTERY PACK:

(Rechargeable NiMH AA Battery Pack - Product Code RB-100)

STEP 1: While holding the unit with one hand, press in and lift up on the battery holder door latch.

STEP 2: Press the battery pack into the slot so that you can read the words "This Side Up" on the battery label and so the arrow is pointing toward the battery door [Fig. F]. The battery pack should fit snugly into the unit.

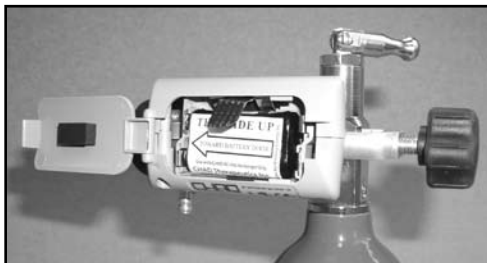




FIGURE F
Installing the
NiMH AA
battery pack.

STEP 3: Close the battery holder cover by snapping it back into place.

STEP 4: Verify that the battery is charged by turning the selector knob to the battery position ().

If this is your first time using the battery pack, you must first charge it for approximately 4-6 hours before using.

 **NOTE:** With normal use of eight (8) hours per day at setting two (2), a battery charge should last approximately one (1) month. Because of the nature of NiMH batteries, the battery pack will discharge in 2-3 months if not in use. If this occurs, follow the recharging procedure before using.

 **Disposal of Batteries/Battery Pack:** Do not dispose of used batteries/battery packs in the household waste. Contact your distributor or a public waste disposal authority.

ASSEMBLY AND USE

INSTALLING THE SYSTEM:

- STEP 1:** Loosen the cylinder attachment knob.
- STEP 2:** Lower the LOTUS® conserver over any CGA 870 post-valve cylinder with the alignment pins toward the holes on the cylinder neck [Fig. G].
- STEP 3:** Align the two (2) pins and gasket with the corresponding holes on the cylinder post valve.
- STEP 4:** While holding the unit in place, tighten the cylinder adjustment knob by turning clockwise [Fig. G].

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.

- STEP 5:** Attach a standard cannula to the oxygen supply outlet. See page 19 for an illustration demonstrating the proper positioning of the nasal cannula.



FIGURE G
Attaching the LOTUS® conserver to the cylinder

ASSEMBLY AND USE

CHARGING THE BATTERY PACK (rechargeable NiMH battery pack):

The LOTUS® recharger kit (Product Code RK-100) is comprised of three (3) components [Fig. H]:

- 1) Rechargeable NiMH AA Battery Pack (RB-100)
- 2) Recharger (RC-100)
- 3) Recharger Plug Adapter, U.S. 110VAC (RA-110)

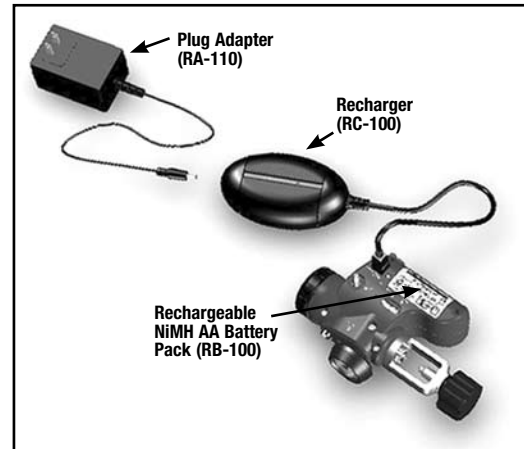


FIGURE H

ASSEMBLY AND USE

CHARGING THE BATTERY PACK (full charge):

- STEP 1:** Connect the Plug Adapter to the Recharger input socket [Fig. H1]. Plug the Adapter into the AC power outlet. The red indicator light will flash three (3) times.
- STEP 2:** Connect the Recharger output connector into the LOTUS® Battery Charger Connector Port [Fig. H2]. The battery pack must be installed in the LOTUS® conserver before charging. If the recharger components are connected properly, both the red light on the recharger and the green charger indicator light on the LOTUS® conserver will illuminate.
- STEP 3:** The battery is now charging. The initial charge may take up to six (6) hours. For all future charges, the charge time will be approximately four (4) hours. When the battery is fully charged, the red light on the recharger will turn off and the green indicator light will turn on.
- STEP 4:** Remove the recharger from the LOTUS® Battery Charger Connector Port. The LOTUS® conserver is now ready to be used as part of your ambulatory oxygen system.

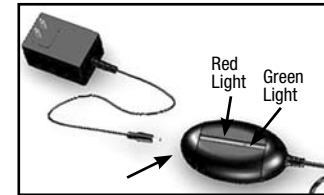


FIGURE H1
Connect Plug Adapter to the Recharger Input Socket

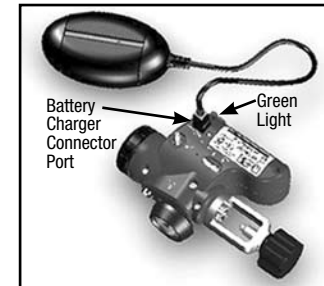
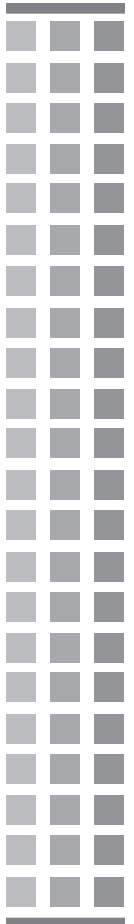


FIGURE H2
Connect the Recharger Output into the LOTUS® Battery Charger Connector Port

ASSEMBLY AND USE

CHARGING THE BATTERY PACK (full charge): continued

- If the recharger is removed from the power source, you must wait fifteen (15) seconds for the recharger to reset before reconnecting it to the LOTUS® conserver and beginning the charging process. Also, leaving the recharger connected to the LOTUS® conserver after the green light on the recharger illuminates (indicating charge is complete) will not damage the system.
- After the initial charge, you may use the LOTUS® conserver while charging. After the battery module is fully charged, the recharger will return to trickle charge mode to top off the battery as it is being depleted.
- For full instructions, specifications, and warnings, please refer to the instruction sheet included with the recharger kit.



ASSEMBLY AND USE

OPERATING INSTRUCTIONS:

STEP 1: Make sure the Bypass Switch is set to Pulse Mode, and the LOTUS® conserver is set to the “OFF” position.

STEP 2: 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.

STEP 3: 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.

STEP 4: Turn the setting selector knob to the battery position (⊕⊖). Check the battery indicator:

- 1) **Green** - Good
- 2) **Amber** - Lower battery energy level, but still in the operational range
- 3) **Red, Flashing Red, or No Indicator** - Replace the battery

🔊 **NOTE:** The battery indicator light will flash amber for one (1) second and the audible alarm will beep once before displaying the battery energy level.

STEP 5: Select the setting on the LOTUS® conserver (1-6) that corresponds to the appropriate delivery setting.

STEP 6: Place the nasal cannula into position with the prongs in the nostrils and begin breathing. [Fig. I]

The LOTUS® conserver will now start to deliver oxygen. The amount of oxygen delivered is determined by the setting. 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 LOTUS® conserver in a carrying bag. Several bags are available for use with different cylinder sizes and configurations.

STEP 7: 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.

STEP 8: Remove the nasal cannula and turn the selector switch to the “OFF” position.

STEP 9: When not in use, store in a clean, dry location.



Fig. I
Proper Positioning of
Nasal Cannula

ASSEMBLY AND USE

ALARM OPERATION:

LOW BATTERY ALARM (ALL MODELS)

When the LOTUS® conserver senses a low battery level while the device is being operated in a delivery setting (between 1 and 6), the following will occur:

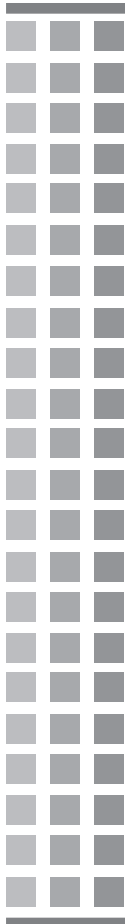
- The battery indicator LED will flash red.
- An audible alarm will beep every fifteen (15) seconds until the battery is replaced, recharged, or depleted completely.

NOTE: If the battery level drops while the device is in the battery position (←→), the red indicator LED may not flash.

BREATH SENSOR ALARM (Model OM-700S ONLY)

This alarm monitors your breathing. If no breath is sensed for 40 seconds, the following will occur:

- The battery indicator LED will flash red.
- An audible alarm will beep every second until a breath is sensed.



OXYGEN CYLINDER DURATION

Because the total delivery of oxygen via the LOTUS® conserver is related to breathing rates, it is user adaptive in that the 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. The table below provides useful information to be used as a guide.

	SETTING	1	1.5	2	2.5	3	4	5	6	Continuous Flow 2lpm
CYLINDER TYPE	CYLINDER VOLUME	Estimated Cylinder Duration in Hours (Based on 20 breaths per minute)								
M2	36 liters	3.0	2.0	1.5	1.2	1.0	0.8	0.6	0.5	0.3
M4(A)	113 liters	9.4	6.3	4.7	3.8	3.1	2.4	1.9	1.6	0.9
M6(B)	164 liters	13.7	9.1	6.8	5.5	4.6	3.4	2.7	2.3	1.4
ML6	171 liters	14.3	9.5	7.1	5.7	4.8	3.6	2.9	2.4	1.4
M7	198 liters	16.5	11.0	8.3	6.6	5.5	4.1	3.3	2.8	1.7
M9(C)	246 liters	20.5	13.7	10.3	8.2	6.8	5.1	4.1	3.4	2.1
D	425 liters	35.4	23.6	17.7	14.2	11.8	8.9	7.1	5.9	3.5
E	680 liters	56.7	37.8	28.3	22.7	18.9	14.2	11.3	9.4	5.7

CARE AND MAINTENANCE

The LOTUS® conserver is designed for a long and accurate life; however, as with any electronic device, prudent care is required. The unit 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 a carrying bag to afford a degree of protection.

HYGIENIC PREPARATION

The unit and its accessories must be hygienically prepared at regular intervals. Also carry out a functional check after the hygienic preparation (see “Functional Check” on page 25).

INTERVALS

The unit and its accessories must be cleaned at the intervals listed below. We also recommend carrying out disinfection at these intervals. Please refer to the instructions supplied with the disinfectant used. You are advised to use suitable gloves for disinfection work (e.g. household or disposable gloves).

INTERVAL	COMPONENT	CLEANING	DISINFECTION
As required	Case/Fittings	Wipe down with a lint-free cloth	Wipe disinfection
As required	Carrying Bag	Clean using mild detergent, cold water and a small scrub brush	Wipe disinfection





CARE AND MAINTENANCE

PROCEDURE

Carry out hygienic preparation of the unit and accessories as described on page 22. We recommend using a 0.5% TERRALIN solution for wipe disinfection. Follow the instructions enclosed with the disinfectant.

WARNING!

- Take special care that no liquids enter the unit, as this may cause damage.
- You should **under no circumstances** use a cleaning agent. Cleaning agents containing alcohol or grease pose a fire risk in combination with compressed oxygen.
- Pay special attention to the oxygen inlet and outlet to make sure they remain free of dust, etc. If the oxygen inlet connection becomes contaminated with dirt, oil, or grease, **DO NOT USE OR ATTEMPT TO CLEAN**. Contact your supplier for service or repair.

CAUTION!

- The 3-in-1 bag must never be washed in a washing machine, spin-dried or dried in a laundry drier.

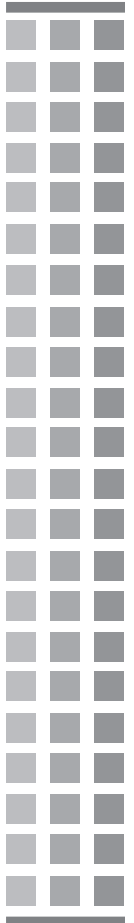
CARE AND MAINTENANCE

NOTE:

- You are advised to use suitable gloves (e.g. household or disposable gloves) for disinfection work.
- When cleaning your carrying bag, be careful not to scrub the plastic window and do not roughen the seams with the brush. When finished cleaning, rinse with fresh, cold water. Repeat cleaning, if necessary. Hang the bag in a well ventilated area and allow to air dry. Do not hang in direct sunlight, as this may cause its external fabric to fade.

PATIENT CHANGE

Carry out a wipe disinfection on the unit's surfaces before you hand the unit over to a new patient.






CARE AND MAINTENANCE

FUNCTIONAL CHECK

CHECKING FOR LEAKS

1. Close the valve on the oxygen cylinder.
2. Depressurize the LOTUS® by inhaling several times using the nasal cannula. The gauge indicator should drop to zero. You can also briefly set the Continuous/Pulse Switch to Continuous Flow.
3. Check that all screwed unions and tube connections are tight. If necessary, tighten them **by hand**.
 **NOTE: Do not use a tool.**
4. Ensure that the unit is switched off and is not in the continuous flow mode.
5. Slowly open the valve on the oxygen cylinder until the needle in the gauge indicator no longer moves.
6. Close the cylinder valve again.
7. Observe the needle in the gauge indicator for approximately one minute.
 - If the needle remains in its position, everything is OK.
 - However, if the contents indicator shows a continuous decrease in pressure, there is a leak in the system. In this event, inform your authorized dealer.

CARE AND MAINTENANCE

DISPOSAL



The Unit: Do not dispose of the unit in the household waste. Consult an authorized electronic waste recycling company for the proper disposal of the unit. You can find out their address from your environmental officer or from your local council.



Disposal of Batteries/Battery Pack: Do not dispose of used batteries/battery packs in the household waste. Contact your distributor or a public waste disposal authority.





PRODUCTS, SPARE PARTS, ACCESSORIES

STANDARD PRODUCT

ORDER NUMBER	DESCRIPTION
OM-700	Standard LOTUS® with CGA 870 Connection
OM-700S	Standard LOTUS® with CGA 870 Connection and breath sensor alarm
OM-700J	Standard LOTUS® with CGA 870 Connection and Japanese symbols (for JAPAN)

SPARE PARTS

ORDER NUMBER	DESCRIPTION
RP-2145	LOTUS® Battery Door
RP-2151	LOTUS® Selector Knob
RP-2119	Black Star Cylinder Adjustment Knob

PRODUCTS, SPARE PARTS, ACCESSORIES

ACCESSORIES

ORDER NUMBER	DESCRIPTION
RB-100	Rechargeable NiMH AA Battery Pack
RC-100	Recharger
RA-110	Recharger Plug Adapter, U.S., 110 VAC
RK-100	Recharger Kit, U.S. Configuration (includes battery pack, recharger, and plug adapter)
OP-150-700	Slimline 3-in-1 carrying bag, fits M6 cylinder
OP-150T	Horizontal carrying tote, fits M4, M6 and M9 cylinders

 **NOTE:** Only manufacturer-specified battery packs, rechargers and gaskets may be used with the LOTUS® conserver. These accessories are available from your dealer.

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
Unit does not pulse.	Dead batteries.	Replace or recharge batteries.
	Batteries installed incorrectly (reversed).	Make sure battery polarity is correct.
	Dirty battery holder contacts.	Remove the batteries. Use rubbing alcohol and a cotton swab to clean 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 batteries are used.	Make sure the batteries inside the unit are alkaline.
	Battery pack was not fully charged before it was inserted or before the device was used.	Leave recharger adapter plugged into the connector port until the red light on the recharger turns off and the green light turns on.
	Battery pack was charged at extreme temperature.	Recharge the battery pack at +10 to +30° C. (See "Charging the Battery Pack" section on pages 16-18).
	Battery pack/batteries are faulty.	Replace battery pack/batteries. (See "Installing the Battery Pack" section on page 14 and the "Installing Alkaline Batteries" section on page 13.)
Red indicator on recharger does not blink three (3) times upon initial connection.	Plug adapter is not properly connected to the electrical wall outlet.	Make proper connection.
	Plug adapter is not properly connected to the recharger input socket.	Make proper connection.
	Electrical wall outlet is not receiving power.	Check power source.
	Faulty plug adapter/recharger.	Discontinue use and contact your Home Care Provider.

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
LOTUS® does not beep upon start-up.	Battery pack/batteries are dead.	Recharge battery pack, replace batteries.
	Battery pack/batteries installed incorrectly.	Make sure battery polarity is correct.
	Dirty battery holder contacts.	Remove the batteries. Use rubbing alcohol and a cotton swab to clean contacts.
	Contacts blocked by straps.	Remove battery pack and reinsert it correctly, keeping an eye on the strap (see “Installing Alkaline Batteries” and “Installing the Battery Pack” on pages 13-14)
The red indicator on the recharger does not illuminate to indicate that the battery pack is charging.	Recharger is not properly connected to the battery charger connector port.	Make proper connection.
	Battery pack is not installed correctly inside the battery holder compartment.	Make sure that the battery pack is installed correctly. Refer to “Installing the Battery Pack” section of this book on page 14.
	Dirty battery holder contacts.	Remove the battery pack. Use rubbing alcohol and a cotton swab to clean all contacts.
	Battery strap is caught between the battery pack and the battery holder side contacts.	Make sure that the battery strap is not caught between the battery pack and the battery holder side contacts.
	A non-approved battery pack or non-alkaline batteries are installed.	Install the proper battery module (RB-100) or alkaline batteries.
	Defective battery pack.	Discontinue use and contact your Home Care Provider.
Breath sensor alarm does not operate or operates intermittently.	Non-alkaline batteries are installed.	Install alkaline batteries.
	Batteries are low/dead.	Install new batteries.
	Batteries are non-functioning.*	Install new batteries.

*Because of variations in Duracell®’s manufacturing process, the alarm on the LOTUS® Model OM-700S may not work properly when using Duracell® batteries.



TROUBLESHOOTING GUIDE

 **NOTE: For further troubleshooting tips on the rechargeable battery module or recharger, see the instruction sheet packaged with the recharger kit.**

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 AND SPECIFICATIONS

TECHNICAL DATA

SPECIFICATIONS

LOTUS®	
Product class according to 93/42/EEC	Ila
Dimensions (W x H x D)	Approximately 4" x 2.5" x 7" Approximately 10.2 cm x 6.4 cm x 17.8 cm
Weight	Approximately 14.5 oz (408 grams)
Input pressure	200 to 3000 PSI (13.8 bar to 206.8 bar)
Temperature range <ul style="list-style-type: none">• Operation• Storage	14°F to 104°F (-10°C to 40°C) -40°F to 158°F (-40°C to 70°C)
Humidity range <ul style="list-style-type: none">• Operation• Storage	15% - 95% non-condensing Up to 95% non-condensing
Air pressure range	0 to 10,000 feet (0 to 3,048 meters)
Cannula	Standard nasal cannula, up to 7 ft. (2.13 m)
Regulator	Built-in, 25 ± 5 PSI (1.7 ± .3 bar)
Continuous flow emergency bypass setting	Factory preset at 2.0 ± 0.5 lpm, provider adjustable between .5 and 6 lpm.

CLASSIFICATIONS AND SPECIFICATIONS

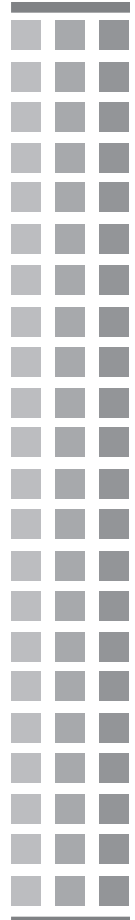
SPECIFICATIONS (Cont.)

Oxygen delivery at level:	<u>ML</u>	<u>Liter Flow Equivalency</u>
1	10 ± 15%	1
1.5	15 ± 15%	1.5
2	20 ± 15%	2
2.5	25 ± 15%	2.5
3	30 ± 15%	3
4	40 ± 15%	4
5	50 ± 15%	5
6	60 ± 15%	6
Continuous flow	2 lpm ± 0.5 lpm	
Maximum breathing rate	40 breaths per minute	
Power supply		
<ul style="list-style-type: none"> • Battery pack • Batteries 	2.4 V battery pack NiMH (2.40 – 3.00V) (2) x 1.5 V alkaline AA or LR6 type batteries	
Battery indicator:		
<ul style="list-style-type: none"> • Green • Amber • Red • Flashing red 	Good Lower battery energy level, but still in the operational range Replace Replace immediately	

CLASSIFICATIONS AND SPECIFICATIONS

SPECIFICATIONS (Cont.)

Classification according to EN 60601-1 <ul style="list-style-type: none">• Degree of protection against electric shock• Degree of protection against harmful ingress of water	Type BF IPX1 as per IEC 60529
Electromagnetic compatibility (EMC) according to EN 60601-1-2 <ul style="list-style-type: none">• Radio interference suppression• Radio interference immunity	EN 55011 EN 61000-4-2 to 6, 8+11
Vibrations	Within IEC 60068-2-64



CLASSIFICATIONS AND SPECIFICATIONS

SEPARATION DISTANCES









Recommended separation distances between portable and mobile HF telecommunications devices (e.g. mobile phone) and the LOTUS®.

The LOTUS® is intended for use in an electromagnetic environment, in which the RF interference is controlled. The customer or user of the LOTUS® can help to avoid electromagnetic interference by observing the minimum distance between portable and mobile RF telecommunication devices (transmitters) and the LOTUS®, according to the transmitter's power output.

Nominal power of the RF device in W	Separation distance according to transmission frequency in m		
	150 kHz – 80 MHz $d = (3.5/V_1) * \sqrt{P}$	80 MHz – 800 MHz $d = (3.5/V_1) * \sqrt{P}$	800 MHz – 2.5 GHz $d = (7/V_1) * \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

CLASSIFICATIONS AND SPECIFICATIONS

SYMBOLS KEY

SYMBOL	MEANING
	Warning, consult accompanying documents
	Refer to the instruction manual
	TYPE PLATE
	Year manufactured
	Degree of protection against electric shock: type BF unit
	Type of protection against electric shock: protection class II unit
	Do not dispose of the unit in the household waste
SN	Serial number of the unit
IPX1	The LOTUS® is protected against dripping. A few drops of rain will not damage the unit, but you should protect it from continued exposure to water by keeping it in its bag or carrying it under your jacket.
	All the requirements in the applicable EC Directives are fulfilled
	No smoking or open flames
I	System ON
O	System OFF



LIMITED WARRANTY

The LOTUS® 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' 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 as outlined in this manual, negligence, accident or repair by other than authorized service professionals shall immediately void this warranty. This warranty does not extend to the battery or cannula.

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: _____

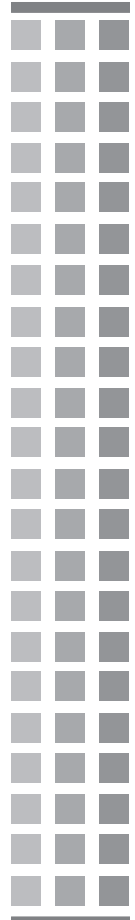
Home Care Provider's Name: _____

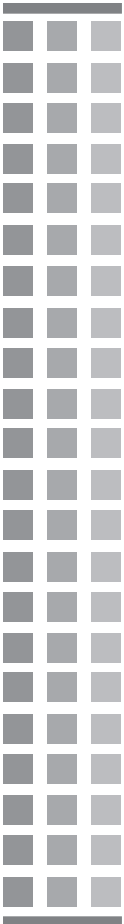
Home Care Provider's Phone Number: (_____) _____

Physician's Name: _____

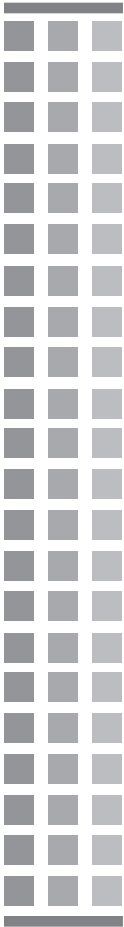
Physician's Phone Number: (_____) _____

Notes: _____





NOTES



CHAD[®]
therapeutics

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