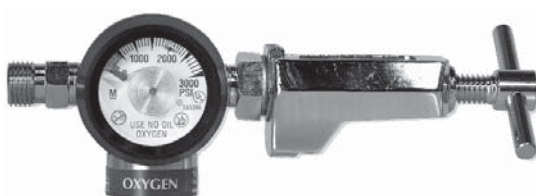


# OPERATING AND MAINTENANCE MANUAL

## GAS REGULATOR PRESET MODELS



### Models Included:

GR-540

GR-870

GR-346

GR-950

GR-326

GR-910

CAUTION: Federal (USA) law restricts this device to sale by or on the order of a physician.

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THIS DEVICE IS CLEANED FOR OXYGEN SERVICE IN ACCORDANCE WITH CGA PAMPHLET G.4.1.

## **IMPORTANT: SAFETY INSTRUCTIONS**

**READ AND UNDERSTAND ALL THE SAFETY AND OPERATING INSTRUCTIONS CONTAINED IN THIS BOOKLET.**

**IF YOU DO NOT UNDERSTAND THESE INSTRUCTIONS, OR HAVE ANY QUESTIONS, CONTACT YOUR SUPERVISOR, DEALER OR THE MANUFACTURER BEFORE ATTEMPTING TO USE THE APPARATUS.**

**⚠ WARNING:** Failure to comply with all instructions may result in fire, property damage, and/or injury to the operator or patient.

**IT IS VERY IMPORTANT TO ALLOW PRODUCT TO REMAIN IN ORIGINAL PACKAGING FOR 24 HOURS TO ACCLIMATIZE TO ROOM TEMPERATURE BEFORE USE**

1. DO NOT attempt to operate this device unless you are properly trained in its use or are supervised by someone educated on the proper use of the apparatus. DO NOT use this device on patients who have stopped breathing using proper resuscitation equipment.
2. On its own, Oxygen is not flammable, however, all material that burns in air will burn much quicker with Oxygen present. OIL AND/OR GREASE BECOME HIGHLY COMBUSTIBLE WHEN OXYGEN IS PRESENT!!! USE NO OIL or GREASE or any other petroleum-based flammable substance on or around oxygen equipment.
3. DO NOT allow Oxygen or Oxygen equipment to be exposed to fire, heat, sparks, electrical switches or other possible sources of ignition. DO NOT store oxygen equipment or use at temperatures of less than 0° F or more than 120° F.
4. DO NOT USE THE OXYGEN REGULATOR IF OIL OR GREASE IS PRESENT OR IF THE REGULATOR IS DAMAGED. Take the regulator to a qualified repair technician for cleaning and/or repairing before use. Inspect the regulator inlet filter in the inlet connection and verify that it is clean. If it appears dirty, take it to a qualified repair technician for replacement.
5. Inspect the cylinder valve and regulator thoroughly for dust, oil and grease. Wipe dusty parts with a damp cloth. DO NOT USE THE CYLINDER IF OIL OR GREASE IS PRESENT. Inform your gas supplier of this condition immediately.
6. Clean the external surfaces of the regulator with a damp cloth. If more cleaning is required, return the regulator to your dealer. DO NOT SUBMERSE THE REGULATOR IN WATER!
7. Train personnel who use and transport oxygen therapy equipment in the proper handling of cylinders and other related equipment (Ref. CGA Pamphlet G-4 "Oxygen").
8. NEVER alter the regulator in any way.
9. This regulator is equipped with a relief valve. If you hear a hissing or popping sound coming from the regulator, close the cylinder valve or gas inlet and contact your dealer. The regulator relief valve is not designed to protect any downstream device or apparatus.
10. Inspect the gas cylinder valve for leaks before putting it into service. If a leak is found around the cylinder valve stem, close the valve, place the cylinder outdoors in a safe area and inform your gas supplier immediately.
11. Secure gas cylinders to a wall, post or cart with cylinder valves up. DO NOT allow cylinders to tip or fall. Never allow the temperature of the cylinder contents to exceed 120° F. DO NOT store cylinders near sources of heat or flame.
12. NO SMOKING - Remove matches, cigarettes, lighters and lighter fluids from the patient and from the oxygen therapy area before administering oxygen. Remove all other flammable materials from the area.
13. Make sure that the person installing or using the cylinder, regulator and other oxygen apparatus has clean hands that are free of hand lotions, vaseline, hair spray or any other similar products.
14. Keep cylinder valve closed at all times when the cylinder is not in use.
15. If practical, keep a spare cylinder of oxygen available.
16. When not attached to a cylinder, store the regulator in its original container in a clean protected storage area free from grease, oils, dirt, lint and other sources of contamination.
17. S/N # is located on regulator body between inlet and relief valve.

## **REGULATOR DESCRIPTION**

Preset medical regulators are equipped with CGA 540 or CGA 870 inlet connections. Outlet connection is the appropriate gas specific fitting.

1. CGA 870 with Swivel Yoke (used on small D and E size cylinders). This connection must have a sealing washer.
2. CGA 540 with Nut and Swivel. There is no sealing washer used with this connection. Tighten this fitting to the larger cylinder valves with a wrench.

## **SPECIFICATIONS**

- Degree of accuracy for regulator with measuring function is 4% of full scale.
- Inlet pressure range 250PSI - 3000PSI
- Outlet pressure 50PSI +/-5
- Minimum flow of over 100 LPM
- Outlet pressure will vary a maximum of 10%

## **CONNECTING THE REGULATOR TO A CYLINDER**

1. Chain or secure the cylinder to a wall, stand or cart. Remove the protective dust cover from the cylinder valve. Keep this cover and reinstall it on the cylinder valve if the regulator is removed and the cylinder is to be used again.
2. Purge the cylinder valve of foreign materials by opening and closing it. See your oxygen cylinder dealer for more detailed information.
3. a. If the regulator has a yoke type inlet connection, be sure that sealing washer is in place on the regulator yoke connection. Place the two pins on the regulator yoke into the matching holes on the cylinder valve. Be sure that the pointed end of T-handle fits into the small round recess on the opposite side of the valve. Hand tighten the T-handle.  
b. If the regulator has a CGA 540 connection, install the end swivel on the cylinder valve and tighten with a wrench.

## **PRESSURIZING THE REGULATOR FOR OPERATION**

1. This type of regulator requires no adjustment. Confirm that any resuscitation equipment connected to a preset regulator is in the "OFF" position.
2. Stand so that the cylinder valve is between you and the regulator.

**⚠ WARNING:** Never stand in front or behind a regulator when opening the cylinder valve. Always stand so that the cylinder is between you and the regulator. Open the cylinder valve slowly.

3. Slowly and carefully turn the cylinder valve counterclockwise until you hear the oxygen begin to flow into the regulator. Wait approximately ten (10) seconds and turn the cylinder valve fully open. Leak test according to instructions listed in "REGULATOR LEAK TESTING".
4. Attach oxygen supply tubing to the Regulator's outlet fitting.
5. After oxygen therapy is complete, close the cylinder valve. See steps listed in "Closing the Regulator". Activate resuscitation equipment until gauge shows no pressure.

## **50 PSIG PRESET REGULATORS WITH DISS SELF-SEALING OUTLET CONNECTION**

1. Models GR-540 and GR-346 are equipped with a 50 PSIG pressure source for operation of demand valves, ventilators, aspirators and other emergency resuscitation equipment.
2. The DISS outlet connection is designed for use with a mating DISS 1240 low-pressure oxygen connection (Ref. CGA Pamphlet V-5, "Diameter Index Safety System Non-Interchangeable Low Pressure Connections for Medical Gas Applications").
3. Positive shut off of the DISS outlet connection is achieved by disconnecting the inlet nut and nipple.
4. The DISS outlet connection flows up to 150 LPM oxygen.

## **REGULATOR LEAK TESTING**

**TEST FOR LEAKS AS FOLLOWS BEFORE PUTTING THE SYSTEM INTO OPERATION.**

1. Connect the regulator to the cylinder as described in section "CONNECTING THE REGULATOR TO A CYLINDER".
2. Pressurize the regulator as described in section 'PRESSURIZING THE REGULATOR FOR OPERATION.'
3. Check all regulator connections using an approved oxygen compatible liquid leak detector. Bubble will appear if a leak is present. If a leak is detected, DO NOT use the regulator. Take it to a qualified technician for repair.

**⚠ WARNING:** At any time the regulator, cylinder or other apparatus does not operate in its usual or normal manner, stop using the apparatus and notify your dealer immediately.

***FLOW RATES ARE NOT ACCURATE WHEN A BACK-PRESSURE OF MORE THAN 2 PSIG EXISTS DOWNSTREAM OF THE REGULATOR.***

Back-pressure is caused by a restriction in the apparatus connecting the regulator unit to the patient. Metering valves, kinked hoses, or even very long hoses can cause back-pressure. In applications where back-pressure of more than 2 PSIG may be expected, use a regulator equipped with a flowmeter. Contact your dealer about concerns related to back pressure.

**CLOSING THE REGULATOR**

1. When you have finished using oxygen, close the system by turning the cylinder valve clockwise to the "OFF" position.
2. The regulator may be kept attached to the cylinder as long as necessary. After closing the system as described above, recheck the cylinder contents gauge and verify that the cylinder valve is not leaking. If pressure shows on the gauge, retighten the cylinder valve.
3. To start the flow of oxygen again, repeat the steps listed in "PRESSURIZING THE REGULATOR FOR OPERATION".

**CAUTION:** Oxygen will continue to flow from the outlet until the cylinder valve is closed (Reference CGA Pamphlet P-14, "Accident Prevention in Oxygen -Rich and Oxygen Deficient Atmospheres"). It is very important to always close the cylinder valve after using.

**REMOVING THE REGULATOR FROM A CYLINDER**

1. Close the cylinder valve.
2. The gauge will indicate no pressure when all pressure is drained from the apparatus.
3. Remove the regulator from the cylinder by loosening the T-handle or removing the inlet nut.
4. When not attached to a cylinder, store the regulator in its original container in a clean protected area free from grease, oil and other contamination.

**MRI WARNING:** This product contains magnetic, ferrous material that may affect the result of an MRI, unless Regulator is ordered as MRI conditional.

**WARRANTY**

Amvex Corporation warrants its Medical Secondary Equipment to be free from defects in material and workmanship for a period of Five (5) years from the date of shipment. Within the first twelve (12) months from date of shipment Amvex will repair or replace any part which is proven to be defective at Amvex's cost. After the first twelve (12) months, Amvex will send the parts to the customer free of charge, but the shipping and installation will be borne by the Customer.

This warranty is valid only when the product has been properly installed according to Amvex specifications, used in a normal manner and serviced according to factory recommendations. It does not cover failures due to damage which occurs in shipments or failures which resulted from accidents, misuse, abuse, neglect, mishandling, alteration, misapplication or damage that may be attributable to acts of God.

**AMVEX CORPORATION DOES NOT HONOR VERBAL STATEMENTS CONCERNING THE WARRANTY.**

The distributor and/or dealer are not sanctioned to create verbal warranties about the product described in this agreement. Any statements will not be honored or be made part of the agreement of sale. This document is the final, complete and exclusive terms of the agreement.

**THIS WARRANTY IS EXCLUSIVE AND REPLACES ALL OTHER WARRANTIES.**

Amvex Corporation shall not, under any circumstances, be liable for incidental or consequential damages including, but not limited to, profit loss, loss of sales or injuries to person(s) or property. Correction of non-compliances as noted above will result in completion of all liabilities of Amvex Corporation whether based on agreement, neglect or otherwise. Amvex Corporation reserves the right to stop manufacturing any product or change materials, designs or specifications without notice. All claims for warranty must first be approved by Amvex's Service Department: (support@amvex.com or 905-764-7736). A valid Return Goods Authorization (RGA) number must be obtained from Amvex prior to commencement of any warranty claim.

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