



# Medical Reserve System

## INSTALLATION AND OPERATING INSTRUCTIONS

**Carefully Read These Instructions Before Operating**

Controls Corporation of America  
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To Order Call 1-800-225-0473 or 757-422-8330 • Fax 757-422-3125  
[www.concoa.com](http://www.concoa.com)



**THIS PRODUCT IS NOT INTENDED FOR USE WITH TOXIC GASES, FLAMMABLE GASES OR CORROSIVE GASES.**

**NOTICE**

**This Reserve System is intended for use in medical installations. This product meets NFPA-99 requirements for reserve systems. Compliance with NFPA-99 for a complete installation (i.e. Cylinders, piping, alarms, etc.) is the responsibility of the installer. Refer to NFPA-99 for complete system requirements.**



**SAFETY**

Specific procedures for the safe use of regulators are listed below. The user can form habits that will prevent an accident due to confusion over changing service needs. Refer to CONCOA publications ADE 872, latest revision, Safe Practices in Welding and Cutting.

- a. Never subject the regulator to inlet pressure greater than its rated inlet pressure, as shown on regulator body.
- b. Never use the regulator for gases other than those for which it is intended.
- c. Check the cylinder valve outlet before attaching a regulator to a cylinder. Do not use the cylinder if oil, grease, or dirt is present. Do not allow oil, grease, or other combustibles to contaminate oxygen equipment or areas where oxygen is in use. Do not place a contaminated regulator into service. The regulator relief valve only protects the regulator. Downstream equipment may require additional pressure relief devices.
- d. To minimize heat effects, avoid use of piping or tubing between cylinder and oxygen regulator. If unavoidable, it should be as short as practicable and equipped with a shutoff valve located just before the regulator. Keep the shutoff valve closed when pressurizing. If regulator is connected to a manifold, open the valve of the cylinder closest to the regulator first, then open the remaining cylinder valves. In either case, when the flow to the shutoff valve stops, wait 60 seconds and then slowly open the shutoff valve. **DRAIN OXYGEN REGULATOR OF GAS BEFORE PRESSURIZING**
- e. Do not allow oil, oil-bearing materials, or other combustibles that can ignite readily in the presence of oxygen, to contaminate the inside or outside of oxygen regulators. Clean oil or grease, if any, from external surfaces as described in step C. Do not place an internally contaminated regulator into oxygen service.
- f. Use oxygen regulator with equipment suitable for and used only for oxygen service.
- g. Never use a pipeline or station regulator on a high-pressure compressed-gas cylinder or manifold.
- h. Never discharge fuel gas from a cylinder valve near welding or cutting work, sparks flame, or any other possible source of ignition.
- i. Before attaching regulator, remove any dirt or foreign matter that may be in the cylinder valve outlet by wiping with a clean, lint free cloth. (See safety item c) Valves on other than combustible-gas cylinders may be opened momentarily to blow outlet clean.

- j. Never pressurize a regulator that has loose or damaged parts or is in questionable condition. Never loosen a connection or attempt to remove a part until gas pressure has been relieved. Under pressure, gas can dangerously propel a loose part.
- k. Before transporting cylinders that are not secured on a cart designed for such transport, remove regulators and recap the cylinders.
- l. Keep cylinder hand wheel or wrench on open cylinder valve at all times, for prompt emergency shutoff.
- m. Do not attempt to clean or change parts of oxygen gauge. Have regulator repaired (see SERVICE section).
- n. The regulator relief valve, if any, is designed to protect the regulator only, and nothing else. Be sure that equipment connected to the regulator outlet is provided with relief devices to protect such downstream equipment against possible overpressure.
- o. Check regulator and ALL connections for leaks after installation, periodically thereafter, and after any service in which parts or connections were loosened. Brush with an approved leak detection solution. Bubble indicate leak.
- p. No repair should ever be undertaken by anyone not having qualifications described in the SERVICE SECTION.

## USER RESPONSIBILITY

This equipment will perform in conformity with the description contained in this manual and accompanying labels and/or inserts when installed, operated, maintained, and repaired in accordance with the instructions provided. This equipment must be checked periodically. Improperly working equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated, should be replaced immediately. CONCOA recommends that a telephone or written request for service advice be made to CONCOA Customer Service in Virginia Beach, Virginia, PHONE: 1-800-225-0473, FAX: 1-757-422-3125, or E-MAIL: [info@concoa.com](mailto:info@concoa.com).

This equipment or any of its parts should not be altered without prior written approval by CONCOA. The user of this equipment shall have the sole responsibility for any malfunction that results from improper use, faulty maintenance, damage, improper repair, or alteration by anyone other than CONCOA or a service facility designated by CONCOA.

## PRODUCT DESCRIPTION

The reserve gas system is designed to work as a third-leg reserve for CONCOA's Medical IntelliSwitch. The principle method of operation is a pressure differential. The reserve gas system delivers an intermediate pressure that is 20 psi lower than the primary pressures on the main inlets of the Medical IntelliSwitch. When both primary inlets are unable to provide sufficient pressure, the third leg reserve automatically takes over. The Medical IntelliSwitch is programmed to display "RES" in both inlets displays and to send a relay contact to a master alarm to indicate that the system is operating under reserve pressure. The pressure switch provided on the inlet side of the reserve gas system is factory set to 2000 psi on the fall. This should be reset to a point that would equate to 24 hours worth of gas remaining on inlet side of reserve system (per NFPA guidelines).

***Note:** Depending on flow requirements, it is possible for the reserve gas system to deliver gas prior to the Medical IntelliSwitch primary inlet failures. This is due to a pressure drop through the system due to the high flow. If this occurs, the reserve gas system regulator pressure will have to be dropped by adjusting the set screw counter-clockwise.*

The outlet check valve of the reserve system is plumbed into the reserve gas inlet port on the Medical IntelliSwitch.

## SETTING PRESURE REGULATOR

The pressure out of the regulator must be set to match the requirements of the Medical IntelliSwitch and the application. To prevent drawing gas from the reserve system prematurely the pressure out of the regulator must be set BELOW the primary inlet regulator pressure setting in the Medical IntelliSwitch. The factory setting for the Reserve Regulator is 20 PSI below this value. Make sure that if any changes are made to the Medical IntelliSwitch the Reserve Regulator is adjusted accordingly.

Using an Allen wrench, turn the set screw on the Reserve System regulator clockwise to increase pressure or counterclockwise to decrease the pressure.

# CONNECTING ALARM OUTPUT

The Reserve System provides an output signal corresponding to the low input pressure alarm condition that it senses. This signal is created from a pressure switch gauge and is brought out to a 4 pin circular connector on the bottom of the unit. A mating 4 pin connector is provided to allow for connecting the alarm to the Medical IntelliSwitch. Pre-made cables are also available. Contact your local CONCOA Distributor or call 1-800-225-0473 for information. The switch is configured as Normally Closed (N.C.) which means that the switch opens on fault or alarm.

The recommended cable for making an output cable assembly is 22 AWG, 2-conductor stranded wire (Alpha # 1172C or equivalent). The length of this cable should be limited to 1500 feet.

Cut the 2-conductor cable to length. Remove the outer jacket of the cable to expose approximately 3/4 inch of the internal conductors on both sides of the cable. Strip away 1/4-inch of the insulation on each of the conductors.

On the 2-pin connector, slide the protective cover, cable retainer, and locking nut over the end of the cable as shown in Figure x.

Using the pin assignments shown in Table 1 and the connector views in Figure 1 and Figure 2, solder the wires to the appropriate pins. After soldering is complete, slide the locking nut over the connector body. Snap the cable retainer into the body and then slide the protective cover over the cable retainer.

Figure 1

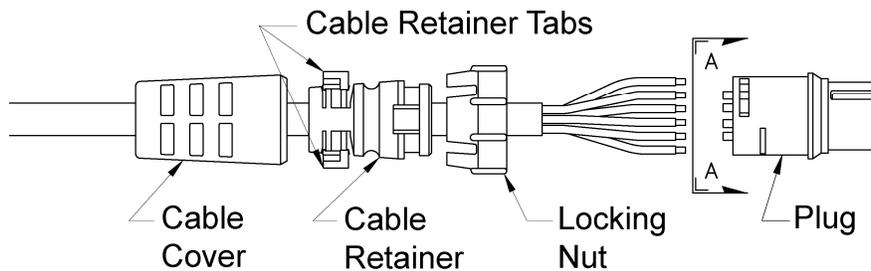


Figure 2

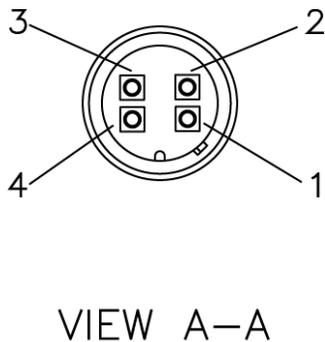


Table 1— Alarm Output Pin Assignments

Alarm Output Connector Pin Number	Function
1	Alarm Signal Out
2	+V (external)
3	N.C.
4	N.C.

# SERVICE

## GENERAL

A unit which is not functioning properly should not be used until all required repairs have been completed and the unit has been tested to ascertain that it is in proper operating condition.

Inspection, troubleshooting, and repair of this equipment as indicated in this manual, may ordinarily be undertaken by a competent individual having at least general experience in the maintenance and repair of equipment of this nature.

### **CAUTION!**

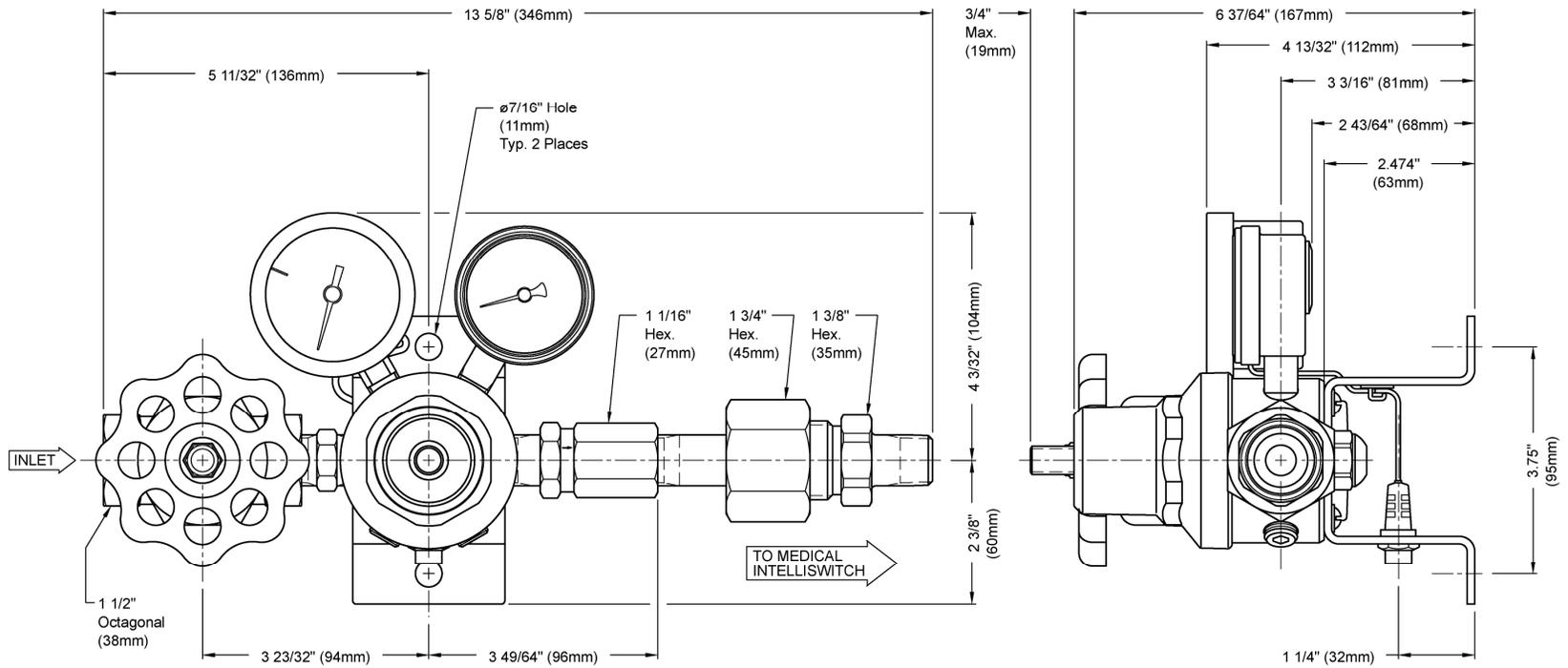
**Maintenance should only be undertaken or attempted by a person knowledgeable in NFPA 99 requirements.**

Defective parts should not be replaced with either a replacement part manufactured or sold by CONCOA or an equivalent.

Except for inspection, troubleshooting, and repairs indicated in this manual, it is recommended that all servicing be done by a service facility authorized by CONCOA. Contact the CONCOA Customer Service Department in Virginia Beach or the nearest CONCOA District Sales Office for assistance.

If so advised, the unit should be sent to a service facility authorized by CONCOA, adequately packaged, in the original shipping container if possible, and shipped prepaid, with a statement of observed deficiency. The gas service that the equipment has been subjected to must be clearly identified. All equipment must be purged before shipment to protect the transporter and service personnel. The purging is especially important if the equipment has been in hazardous or corrosive gas service. Return trip transportation charges are to be paid by Buyer. In all cases other than where warranty is applicable, repairs will be made at current list price for the replacement part(s) plus a reasonable labor charge.

Test regulator for leaks on a routine schedule.



## **WARRANTY INFORMATION**

This equipment is sold by CONTROLS CORPORATION OF AMERICA under the warranties set forth in the following paragraphs. Such warranties are extended only with respect to the purchase of this equipment directly from CONTROLS CORPORATION OF AMERICA or its Authorized Distributors as new merchandise and are extended to the first Buyer thereof other than for the purpose of resale.

For a period of one (1) year from the date of original delivery (90 days in corrosive service) to Buyer or to Buyer's order, this equipment is warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts, provided that the same is properly operated under conditions of normal use and that regular periodic maintenance and service is performed or replacements made in accordance with the instructions provided. The foregoing warranties shall not apply if the equipment has been repaired: other than by CONTROLS CORPORATION OF AMERICA or a designated service facility or in accordance with written instructions provided by CONTROLS CORPORATION OF AMERICA, or altered by anyone other than CONTROLS CORPORATION OF AMERICA, or if the equipment has been subject to abuse, misuse, negligence or accident.

CONTROLS CORPORATION OF AMERICA's sole and exclusive obligation and Buyer's sole and exclusive remedy under the above warranties is limited to repairing or replacing, free of charge, at CONTROLS CORPORATION OF AMERICA's option, the equipment or part, which is reported to its Authorized Distributor from whom purchased, and which if so advised, is returned with a statement of the observed deficiency, and proof of purchase of equipment or part not later than seven (7) days after the expiration date of the applicable warranty, to the nearest designated service facility during normal business hours, transportation charges prepaid, and which upon examination, is found not to comply with the above warranties. Return trip transportation charges for the equipment or part shall be paid by Buyer.

CONTROLS CORPORATION OF AMERICA SHALL NOT BE OTHERWISE LIABLE FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO: INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, OR SPECIAL DAMAGES, WHETHER SUCH DAMAGES RESULT FROM NEGLIGENCE, BREACH OF WARRANTY OR OTHERWISE.

THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREINABOVE SET FORTH. CONTROLS CORPORATION OF AMERICA MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE EQUIPMENT OR PARTS THEREOF.

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**Certified ISO 9001:2000**

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