



# 308 Series Heated Regulator

## **INSTALLATION AND OPERATION INSTRUCTIONS**

This Equipment is intended to be installed and operated by trained personnel.

Before Installing or Operating, Read and Comply with These Instructions

Controls Corporation of America

1501 Harpers Road Virginia Beach, VA 23454

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[www.concoa.com](http://www.concoa.com)

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## **USER RESPONSIBILITY**

This equipment will perform in conformity with the description thereof 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. Defective equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated, should be replaced immediately. Should such repair or replacement become necessary, 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: e-mail@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.

## **CUSTOMER SERVICE**

In the event of equipment failure, call CONCOA Customer Service. Please be prepared to provide the model number and serial number of the equipment involved, in addition to some details regarding its application.

## **SAFETY**

### **GENERAL SAFETY PRACTICES**

**This regulator is not for use with flammable gases.**

Specific procedures for the safe use of this equipment are listed below.

- a. The regulator relief valve protects only the regulator and is not intended to protect any other equipment. Be sure the equipment with which it is used is also protected by relief device(s) if such equipment can not withstand full cylinder pressure.
- b. Never use the regulator for gases other than labeled. It is designed to withstand 3000 psig maximum inlet pressure.
- c. All connections to the regulator must be clean. Remove dirt or other foreign matter from the regulator and metal connecting parts with a clean lint free cloth. Be sure to use a new gasket for each installation when a gasket is used.

Provide sufficient ventilation to prevent toxic accumulation in breathing air. Avoid prolonged or repeated breathing of vapor or contact with skin. Do not take internally.

- d. 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.
- e. Before transporting a cylinder that is not secured on a cart suitable for such transport, remove the regulator and recap the cylinder.
- f. Stand on one side of outlet of cylinder valve or regulator when opening valve.

## **INTRODUCTION**

This manual provides installation, operation, and service information for the Model 308 Series electrically heated single-stage regulators. These regulators have metal diaphragms which make them ideal for general laboratory uses as well as pressure control devices for critical analytical procedures. Generally, these regulators are used for handling both Carbon Dioxide and Nitrous Oxide.

Either regulator is used for nonsiphon cylinder service. It is a regulation device used in furnace blanketing, purging, shrink fitting, atomic absorption and other applications requiring high, steadily-maintained gas flows.

The Regulator has a 115-volt 1.3 amp or 220-volt .65 amp heating system consisting of three 50-watt heating cartridges, a primary thermostat to provide automatic temperature control, and a secondary safety thermostat cutout.

## **INSTALLATION**

- a. Observe the precautions listed in the SAFETY Section.
- b. Connect the regulator to the cylinder valve outlet, checking that the washer, if required, is in good condition and is in place.
- c. This equipment has been supplied with a 3-wire cord. 220v units will require the addition of a power plug.

## Power Requirements

For 115 Volt AC Units: 100-127 VAC 50/60HZ, 150W

For 230 Volt AC Units: 197-252 VAC 50/60 HZ, 150W



### CAUTION

To guard against potential shock and fire hazard: Always use a grounded plug and protect the circuit with a suitable fuse or circuit breaker.

- d. Plug the regulator line cord into a grounded receptacle. The heaters draw a total load of 150 watts.
- e. Connect downstream equipment hose to the outlet. Slightly open equipment gas valve. Then slowly open cylinder valve and purge line to discharge contaminants. Close equipment valve several seconds after pure gas starts to flow from equipment. Open cylinder valve fully and the required gas flow is ready for use.
- f. Close the cylinder valve and unplug the line cord from the supply receptacle whenever the regulator is not in use.
- g. Before making any electrical connections test all pressure connections for leaks by applying an approved leak detected solution.

## OPERATION

### To Adjust Flow Rate or Pressure

- a. With gas flowing at downstream end, slowly turn regulator adjusting screw clockwise until desired pressure is shown on operating gauge.
- b. To reduce flow rate or pressure, turn adjusting screw counterclockwise while allowing gas to flow from downstream valve.

### To Shut Down

- a. Close cylinder valve.
- b. Open downstream valve to drain lines.
- c. Close downstream valve, and unplug the line cord.

## 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 order.

#### IMPORTANT

Checking or repair of this equipment, limited to replacement of nonrpressurized external parts such as electrical components, may ordinarily be undertaken by a competent individual having experience in the maintenance and repair of equipment of this nature. No such checking or repair should ever be undertaken or attempted by anyone not having such qualifications.

Shut down and unplug and disconnect Regulator from cylinder or pipeline before starting maintenance or repair.

Handle the Regulator carefully. Observe "IMPORTANT" above, "User Responsibilities" section of manual (page 2) and applicable precautions in SAFETY Section at front. In case of malfunction, return Regulator for repair to the nearest CONCOA designated repair location, as special tools, tests, and techniques are required.



#### CAUTION

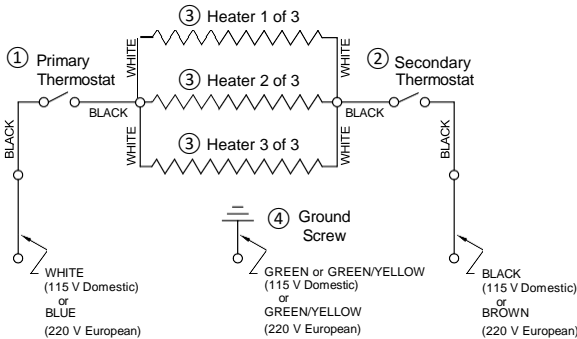
#### CAUTION

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.

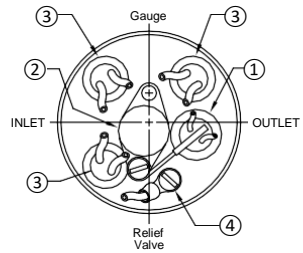
If so advised, the unit should be sent to a service facility authorized by CONCOA, adequately packaged, in the original shipping container if possible, and shipped prepaid, with a statement of observed deficiency. The gas service that the equipment has been subjected to must be clearly identified. All 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.

# Good Maintenance Practice

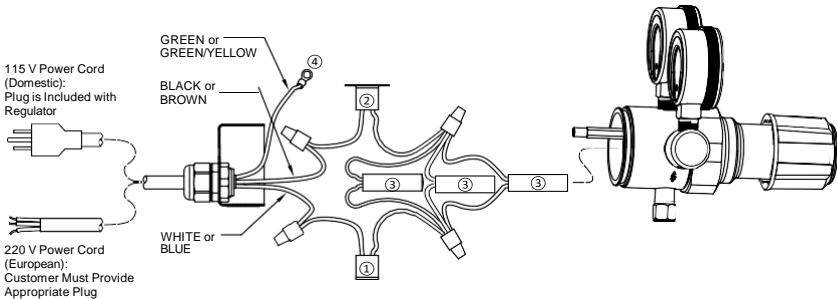
- a. When using a vise or wrench, use only enough pressure to hold the Regulator. Be careful not to scar or distort the body, threads, or other parts.
- b. Clean parts to remove dirt before reassembling (GENERAL SAFETY PRACTICES, step d).
- c. Test Regulator for leaks before using. Test regularly between uses.



WIRING DIAGRAM



VIEW OF HEATERS  
& THERMOSTATS  
INSTALLED IN BACK  
OF REGULATOR



## Trouble Shooting Symptoms

1. With no flow through the system (downstream valves closed and cylinder valve open) working pressure increasing steadily above set pressure (use test gauge if necessary).

2. Gas leakage from spring case

Gauge:

3. Gas leakage from gauge

4. Gauge does not return to zero

5. Gauge does not consistently repeat reading

6. Gas leakage from any joint

7. Excessive drop in working pressure

8. Gas leakage from relief valve

9. Inadequate heat

10. No heat

## Probable Cause

1. Leak across the seat

2. Loose case or damaged diaphragm

3. Damaged gauge

4. Damaged gauge

5. Damaged gauge

6. Damaged or loose connection (fittings, gauges, or spring case)

7. Worn or sticking internal parts; Internal flow obstruction; Dirty inlet gland filter; Cylinder or upstream valve not fully opened.

8. Faulty valve; Seat leak

9. One or two heaters burned out\*

10. Lack of power; Faulty thermostat(s)

\*Check resistance across power leads (Figure 1). With all heaters functioning, resistance should be 88 ohms. With two heaters functioning, resistance should be 132 ohms. And with only one heater functioning, resistance should be 256 ohms.



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# 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.**

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