# OPERATION AND MAINTENANCE
## MODEL 211 BACK PRESSURE REGULATOR

## GENERAL

Also known as a priority valve, the model 211 is a fully balanced, economical regulator. It serves a wide variety of uses, however it's main use is on small compressors. The regulator will improve moisture separator efficiency and filter life as much as 450%. This is done by maintaining pressure in the separator and filter at 1800 PSI or more when tank pressure is lower. It has two outlet ports permitting attachment of a filling yoke and gauge directly to the regulator. This eliminates costly fittings.

## SPECIFICATIONS

- Maximum rated pressure - 6000 PSI (40 MPa)
- Set pressure - 1800 PSI (adjustable 300 to 5000)
- Materials - Anodized aluminum body, brass, stainless steel, Viton seals
- Flow capacity - 2 to 50 SCFM
- Leakage - Zero external; 0.05 SCFM internal
- Ports - 1/4" female pipe thread (NPT)
- Size - 3 1/2" x 1 1/2" x 1"

## INSTALLATION

Use a suitable pipe thread sealant such as teflon tape on the inlet and outlet ports. Plug the second outlet port if not used. Connect the inlet to the source gas such as a compressor. If the regulator is installed in a piping line insure it is adequately supported or adjacent piping is supported so any possible force on the regulator or piping will not damage or break the piping. The regulator is NOT shipped oxygen clean and should NOT be used for oxygen service as provided. Consult the factory for details on oxygen service.

## OPERATION

In operation the back pressure regulator will maintain its set pressure upstream and allow just enough gas flow to hold this pressure. The set pressure can be adjusted by loosening the 7/8" hex nut and turning the adjusting screw with a 5/16" Allen wrench. Set pressure is pressure at the inlet port when gas is flowing through the regulator. The gauge connected to the outlet gauge port does not read set pressure. It reads pressure of the tank being filled down stream of the regulator.

## MAINTANENCE & REPAIR

Routine maintenance is generally not required. Under extended or severe operation it is helpful to relubricate the poppet seal item 8. (see drawing on opposite side). To disassemble, loosen nut 6 and remove adjusting screw 5 along with spring 7 and guide 4. Remove seat 10 using a 1/8" Allen wrench. Push out poppet 3, seal 8, and 13. Avoid using sharp instruments to remove seal. A paper clip bent sharply and with rounded tip works well to fish out seal 8 from the body 1. Slip seal 8 then back up 13 on poppet 3 and position about 1/8" from poppet shoulder as shown on the drawing. Fully pack area between the shoulder and seal with grease. Also pack about a 1/8" area on other side of seal. Use Cristo-Lube MCG 121 grease or equivalent, per MIL-G-27617 types 2 & 3. Drop poppet and seal back into the body. Lightly grease the threads and seal 10 on seat 2 and screw tightly into body. Reinstall spring, spring guide and adjusting screw as shown. Reset regulator by applying pressure to the inlet and adjusting set screw 5 so flow starts at desired set pressure.

Excessive leakage can occur internally between the inlet and outlets resulting in a drop in set pressure. This is generally due to dirt or other particulates damaging the seat 2. Leakage can sometimes be reduced by lightly tapping ball 9 against seat 2 thus forming a new seal surface. This can be done by inserting a 1/4" rod through the adjusting screw hole and tapping with a hammer. If this does not work, the seat 2 must be replaced.

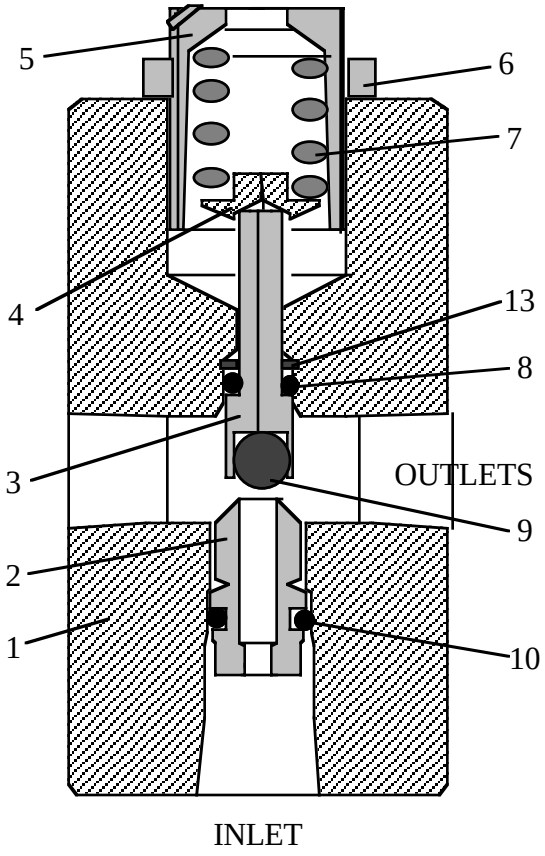
A repair kit consisting of seat, poppet, and seals (part number 211-12) is available.

IN ALL CASES THE UNIT CAN BE RETURNED TO THE FACTORY FOR REPAIR.

## ASSEMBLY AND DISASSEMBLY

Assembly and disassembly can be done by qualified personnel by following this drawing and parts list. Also refer to the repair section on the opposite side of this sheet.

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 212 | body |
| 2 | 1 | 213 | seat |
| 3 | 1` | 214 | poppet (std) |
| | 1 | 846 | aluminum poppet (see note 7) |
| 4 | 1 | 568 | spring guide |
| 5 | 1 | 510-1 | press. adj. screw |
| 6 | 1 | 511 | lock nut |
| 7 | 1 | 324-7 | spring |
| 8 | 1 | 324-8 | seal 2-007 Viton 75 |
| 9 | 1 | 324-9 | ball 1/4" dia |
| 10 | 1 | 324-10 | seal 2-011 Viton 90 duro |
| 11 | 1 | 324-11 | label |
| 12 | | 211-12 | repair kit note 9. |
| 13 | 1 | 324-13 | TFE spiral back up MS 28782-2 |




NOTES

1. Fully pack area between items 3, 8, & 13 with Cristo-Lube MCG 121 leave .06" space between 8 and shoulder of 3 to fill with MCG 121 or equiv. per MIL-G-27617 types 2 & 3.
2. Use light coat of MCG 121 grease on items 2 and 10, and on threads of item 2.
3. Nominal set pressure is 1800 to 2000 PSI.
4. Lube item 5,6,&7 with silicone spray.
5. Attach 324-11 in lower right corner.
6. Tech bulletin - 564.
7. Assy 1118 is same as 211 except Alum poppet 846 is used.
8. Assy 976 - same as 211 except CDA 360 brass body part no. 983, and oxygen compatible lubricants through out. Assy 1235 same as 211 except has body 1234 with mount holes. Assy 1233 same as 211 except item 8 is low temp buna compound 756-75N.
9. 211-12 repair kit consists of items 2,3,8,9,10,13 - seat packaged in separate baggie.
10. If item 13 is not used use 90 duro O ring for item 8.