



## SR4 Series Regulators

PARTS & SERVICE BULLETIN

FORM NO. 56-1173

EFFECTIVE 2/90

### MODEL INFORMATION

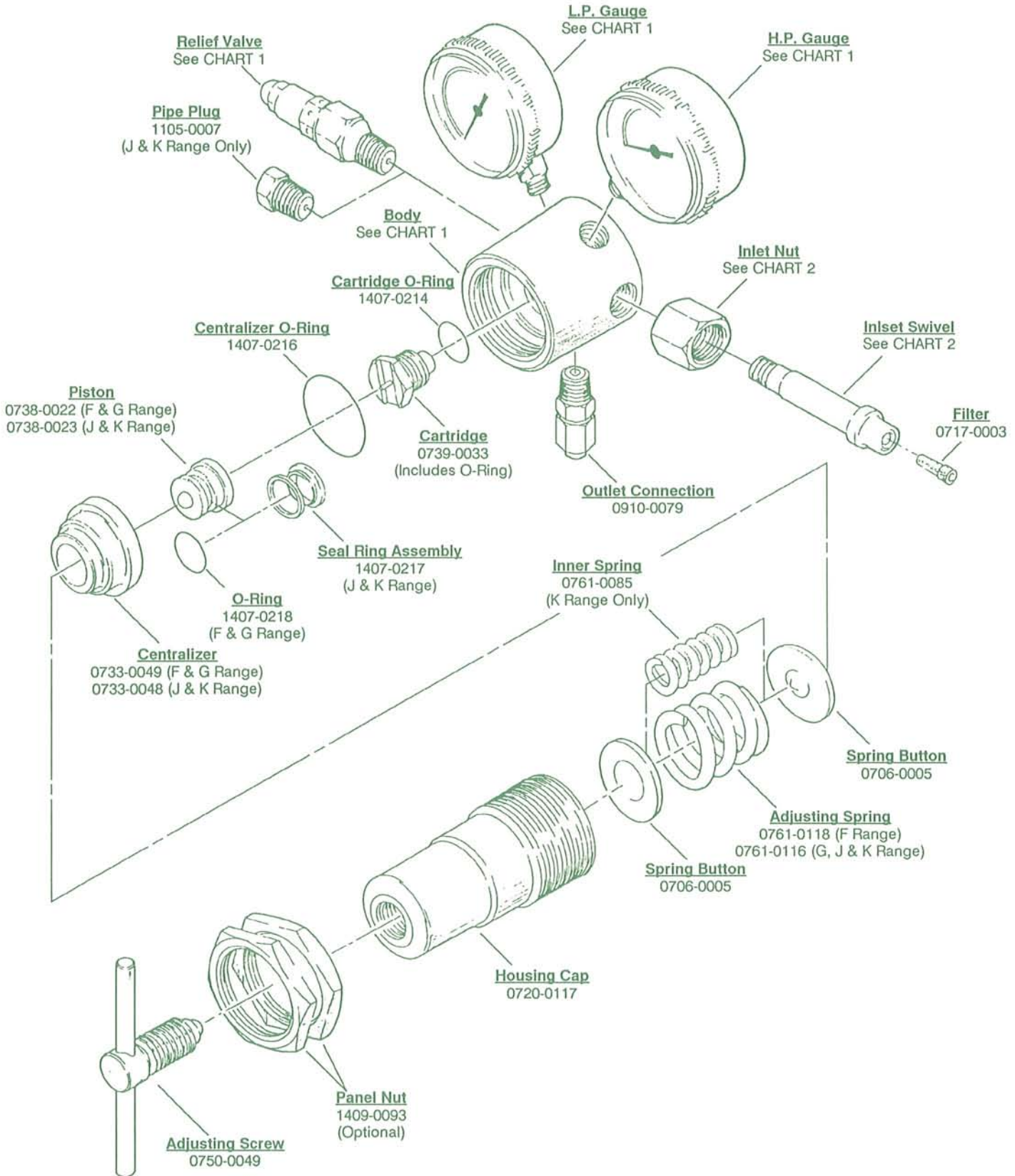
Gas Service	Model Number	Inlet Pressure	Delivery Range(PSIG)	CGA Inlet No.
Oxygen	SR4F-540	3000	50-750	540
	SR4G-540	3000	100-1500	540
	SR4J-540	3000	200-3000	540
	SR4J-577	4000	200-3000	577
	SR4K-701	5500	300-4500	701
Inert Gas	SR4F-580	3000	50-750	580
	SR4G-580	3000	100-1500	580
	SR4J-580	3000	200-3000	580
	SR4G-680	5500	100-1500	680
	SR4J-680	5500	200-3000	680
	SR4K-680	5500	300-4500	680
Air	SR4G-346	3000	100-1500	346
	SR4J-346	3000	200-3000	346
	SR4G-347	5500	100-1500	347
	SR4J-347	5500	200-3000	347
	SR4K-347	5500	300-4500	347
Methane, Hydrogen	SR4F-350	3000	50-750	350
	SR4G-350	3000	100-1500	350
	SR4J-350	3000	200-3000	350
Carbon Dioxide	SR4F-320	3000	50-750	320
Oxygen, Inert Gas, Air, Methane, Hydrogen, Carbon Dioxide	SR4F-250	6000	50-750	N/A
	SR4G-250	6000	100-1500	N/A
	SR4J-250	6000	200-3000	N/A
	SR4K-250	6000	300-4500	N/A

### WARNING!

Welding apparatus improperly operated, maintained or repaired can be dangerous. Some parts and accessories manufactured by others may fit VICTOR apparatus but not conform to VICTOR's exacting standards. For your own protection, specify and use ONLY VICTOR-made parts and accessories with your VICTOR apparatus.

Service or repair of VICTOR apparatus should be performed only by a qualified technician. Improper service, repair or modification of the product could result in damage to the product or injury to the operator.

# SR4 Series Regulators



## CHART 1

Description	SR4F-320 SR4F-540 SR4F-580	SR4F-350	SR4G-346 SR4G-540 SR4G-580	SR4G-347 SR4G-680	SR4G-350	SR4J-346 SR4J-350 SR4J-540 SR4J-580
Body L.P. Gauge H.P. Gauge Relief Valve	0701-0038 1424-0049 1424-0057 0600-0109	0701-0038 1424-0049 1424-0057 0600-0082	0701-0038 1424-0180 1424-0057 0600-0112	0701-0037 1424-0180 1424-0296 0600-0112	0701-0038 1424-0180 1424-0057 0600-0080	0701-0038 1424-0057 1424-0057 N/A
Description	SR4J-347 SR4J-577 SR4J-680	SR4K-347 SR4K-680 SR4K-701	SR4F-250	SR4G-250	SR4J-250	SR4K-250
Body L.P. Gauge H.P. Gauge Relief Valve	0701-0037 1424-0057 1424-0296 N/A	0701-0037 1424-0296 1424-0296 N/A	0701-0038 1424-0049 1424-0296 0600-0109	0701-0038 1424-0180 1424-0296 0600-0112	0701-0038 1424-0057 1424-0296 N/A	0701-0038 1424-0296 1424-0296 N/A

## CHART 2

Gas	CGA No.	Inlet Nut	Inlet Swivel	Retaining Ring	Inlet Washer
Oxygen	540	0967-0044	0967-0034	1406-0130	N/A
	577	0977-0003	0977-0001	1406-0131	N/A
	701	0988-0003	0988-0001	1406-0131	N/A
Inert Gas	580	0973-0003	0970-0005	N/A	N/A
	680	0958-0003	0958-0001	N/A	N/A
Air	346	0972-0015	0972-0010	N/A	N/A
	347	(Included)	0978-0001	N/A	N/A
Methane, Hydrogen	350	0983-0003	0983-0008	N/A	N/A
Carbon Dioxide	320	0985-0030	0985-0004	N/A	1408-0065

## SERVICE INSTRUCTIONS

### Recommended Tools and Supplies:

Cap Wrench RT-173(1420-0268)  
Adjustable Open-End Wrench  
Socket Wrench  
9/16", 5/8", 11/16" Sockets  
Torque Wrench  
Inlet Swivel Ass'y Plug RT-81 (1420-0127) - CGA 320  
Inlet Swivel Ass'y Plug RT-145 (1420-0220) - CGA 346  
Inlet Swivel Ass'y Plug RT-166 (1420-0260) - CGA 347  
Inlet Swivel Ass'y Plug RT-2 (1420-0009) - CGA 350  
Inlet Swivel Ass'y Plug RT-4 (1420-0014) - CGA 540  
Inlet Swivel Ass'y Plug RT-167 (1420-0261) - CGA 577  
Inlet Swivel Ass'y Plug RT-85 (1420-0134) - CGA 580  
Inlet Swivel Ass'y Plug RT-168 (1420-0262) - CGA 680  
Inlet Swivel Ass'y Plug RT-169 (1420-0263) - CGA 701  
Bench Vise  
LOCTITE® #7931 (0028-0056)  
TEFLON® Tape (0028-0028)  
KRYTOX® #240 AC

**NOTE:** for additional information, refer to Apparatus Service and Testing procedures (Form No. 56-0886) and Repair Tools Manual (Form No. 56-0121).

## Disassembly Procedure

- Place the Inlet Swivel Assembly Plug in the Bench Vise. Attach the Regulator to it with the Gauges face up.
- Remove the Adjusting Screw from the Housing Cap.
- Remove the Housing Cap from the Body.
- Remove the Spring Buttons, Adjusting Spring(s), Centralizer and Centralizer O-Ring from the Body. If necessary, remove the Piston from the Centralizer. Remove the O-Ring or Seal Ring Assembly from the Piston. Discard the O-Rings and Seal Ring Assembly.
- Remove the Cartridge from the Body. Discard it and the Cartridge O-Ring.
- Remove the Gauges and Outlet Connection from the Body.
- Remove the Pipe Plug or Relief Valve from the Body.
- CGA 540, 577 and 701 only:** Remove the Retaining Ring from the Inlet Swivel.
- Remove the Inlet Swivel from the Body. Remove the Inlet Nut and Filter from the Inlet Swivel. **Discard the filter.**
- Inspect the Body for signs of damage or wear. Replace the Body if threads are damaged or if wear is apparent.

**CAUTION:** Discard the O-Rings, Seal Ring Assembly, Cartridge, and Filter. Replace them each time you reassemble a Regulator.

## Cleaning Regulator Parts

Clean all metal parts with a cleaner that is safe for use with high pressure oxygen. Contact a chemical/cleaning supply distributor for recommended cleaners for use with high pressure oxygen. Always use cleaning solvents in accordance with the manufacturer's instructions. **WARNING: DO NOT** allow nonmetal parts to come in contact with any cleaning solvent! Cleaning solvents cause elastomeric and plastic parts to swell and stress crack. If these parts require cleaning, use a mild soap solution, followed by thorough rinsing in water. Dry these parts completely before installing in the Regulator. **REPLACE NONMETAL PARTS THAT HAVE COME IN CONTACT WITH OIL, GREASE OR ANY OTHER PETROLEUM BASED SUBSTANCE!**

## Assembly Procedure

1. Install the new Filter in the Inlet Swivel. Slide the Inlet Nut on the Inlet Swivel.
2. Clamp the Inlet Swivel Assembly Plug in the Bench Vise. Install the Inlet Swivel in the Inlet Swivel Assembly Plug.
3. Apply two or three drops of LOCTITE #7931 (no Teflon® tape) to the second and third Inlet Swivel threads. Install the Body on the Inlet Swivel. Tighten to 20 to 25 ft.-lbs. of torque.  
**CGA 540, 577 and 701 Only:** Install the Retaining Ring in the groove on the Inlet Swivel.
4. Apply two or three drops of LOCTITE #7931 and/or Teflon® tape to the second and third threads of the Pipe Plug or Relief Valve. Install the Pipe Plug or Relief Valve in the Body. Tighten to 14-18 ft.-lbs. of torque.
5. Apply two or three drops of LOCTITE #7931 and/or Teflon® tape to the second and third threads of the H.P. Gauge and L.P. Gauge. Install the Gauges in the Body. Tighten Gauges to 10 ft.-lbs. of torque minimum.
6. Remove the Body from the Inlet Swivel Assembly Plug.  
**CAUTION:** To remove any contaminants that could cause Regulator malfunction, connect the Inlet Swivel to a source of oil-free air or dry nitrogen. Slowly open and close the cylinder valve two or three times. Blow out the Body with pressurized oil-free air or dry nitrogen to remove debris.
7. Reattach the Regulator to the Inlet Swivel Assembly Plug. Install the new Cartridge in the Body. Tighten to 15-20 ft.-lbs. of torque.
8. Apply KRYTOX® #240 AC lubricant to the Piston O-Ring or Seal Ring Assembly. Install the O-Ring or Seal Ring Assembly on the Piston. (Note the orientation of the Seal Ring Assembly.)
9. Apply a thin film of KRYTOX® #240 AC to the inside of the Centralizer. Slide the Piston into the Centralizer as far as possible.
10. Apply KRYTOX #240 AC lubricant to the Centralizer O-Ring. Install the Centralizer O-Ring in the groove of the Body.
11. Place the Centralizer and one of the Spring Buttons (raised side up) in the Body.
12. Install the Adjusting Spring(s) in the Body. Place the second Spring Button (raised side down) on the Adjusting Spring.
13. Carefully place the Housing Cap over the Adjusting Spring. Screw the Housing Cap on the Body. Tighten Housing Cap to 50 to 60 ft.-lbs. of torque.

14. Apply a small amount of KRYTOX® #240 AC lubricant to the end and first few threads of the Adjusting Screw. Start the Adjusting Screw in the Housing Cap.
15. Remove the Regulator from the Inlet Swivel Assembly Plug.

## Test Procedure

### Recommended Tools and Supplies:

- High Pressure Test Gun, i.e. Whitey #3TF4 (quick opening on/off valve) with #55 (0.0520) restricting orifice
- 3500 PSIG source of Oil-free Air or Dry Nitrogen (3000 PSIG Inlet Regulators)
- 5000 PSIG source of Oil-free Air or Dry Nitrogen (4000 & 5000 PSIG Inlet Regulators)

**WARNING:** Always perform the following test procedure after assembling a Regulator. Test with oil-free air or dry nitrogen **ONLY!** **NEVER** stand directly in front of or behind a Regulator when opening the Cylinder Valve or Test Manifold. Always stand so that the Cylinder Valve or Test Manifold is between you and the Regulator.

1. Before attaching the Regulator to the Cylinder Valve or Test Manifold Valve, slowly open and close the valve two or three times to remove any contaminants that may enter the Regulator. Leave the valve closed.
2. Attach the Regulator to the Cylinder or Test Manifold. The Cylinder or Manifold must deliver 3500 PSIG (3000 PSIG Inlet Regulators) or 5000 PSIG (4000 & 5000 PSIG Inlet Regulators).
3. Attach the Test Gun, with #55 (0.0520) restricting orifice to the Outlet Connection.
4. **CREEP TEST/SLOW SHUT-OFF TEST**
  - a. Slowly open the Cylinder or Manifold Valve to pressurize the Regulator.
  - b. With the Test Gun closed, adjust the Regulator to deliver the appropriate pressure listed below:

F Range:	200 PSIG
G Range:	400 PSIG
J Range:	500 PSIG
K Range:	1000 PSIG
  - c. Open and close the Test Gun several times to stabilize the Regulator. Leave the Test Gun closed.
  - d. Observe the Gauge for five (5) minutes. During the first minute, slow shut-off (delivery pressure rise due to slow valve seating) must not exceed the appropriate pressure listed below:

F Range:	20 PSIG
G Range:	40 PSIG
J Range:	80 PSIG
K Range:	100 PSIG

No further change in delivery pressure is allowed in the next four (4) minutes.
5. **DROP TEST**
  - a. With the Test Gun closed, adjust the Regulator to deliver the appropriate pressure listed below:

F Range:	200 PSIG
G Range:	400 PSIG
J Range:	500 PSIG
K Range:	1000 PSIG
  - b. Open the Test Gun and note the new Gauge reading. Drop (the difference in delivery from no-flow to flow-

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ing) should not exceed the appropriate pressure listed below:

F Range:	50 PSIG
G Range:	100 PSIG
J Range:	200 PSIG
K Range:	400 PSIG

#### 6. LEAK TEST

- a. With the Test Gun closed, adjust the Regulator to deliver the maximum rated delivery pressure (shown on the "Model Information" chart on the front cover).
- b. Close the Cylinder or Manifold Valve.
- c. Observe the Gauges for five (5) minutes. If the H.P. Gauge reading drops, a leak exists in the Cylinder Valve, Inlet fitting or H.P. Gauge.

If the L.P. Gauge reading drops, a leak exists in the downstream equipment, Outlet Connection or L.P. Gauge.

If the H.P. Gauge reading drops while the L.P. Gauge reading increases, a leak exists across the Regulator Seat.

7. If a leak is discovered or the Regulator does not perform properly, disassemble. Replace any suspect or damaged parts. Reassemble and retest the Regulator.
8. Release the pressure from the Regulator by opening the Test Gun. Turn the Adjusting Screw counterclockwise until there is no pressure on the Adjusting Spring.
9. Remove the Test Gun from the Regulator. Remove the Regulator from the Cylinder Valve or Test Manifold.

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