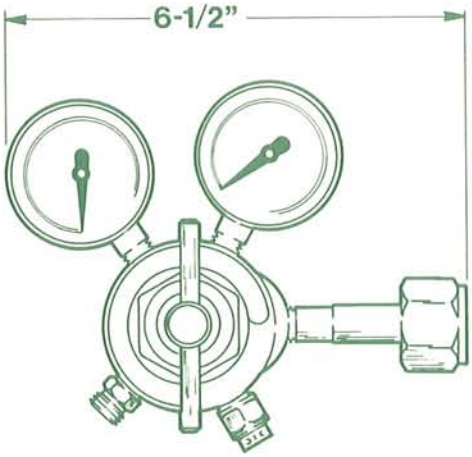
VICTOR®

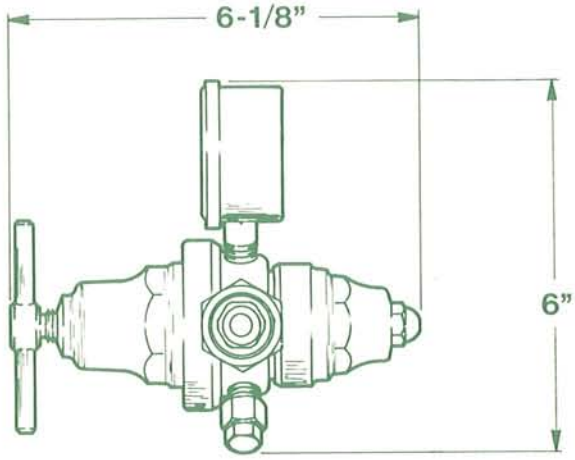
PARTS AND SERVICE BULLETIN

VTS 250 SERIES REGULATORS

FORM NO. 56-623

EFFECTIVE 6-87





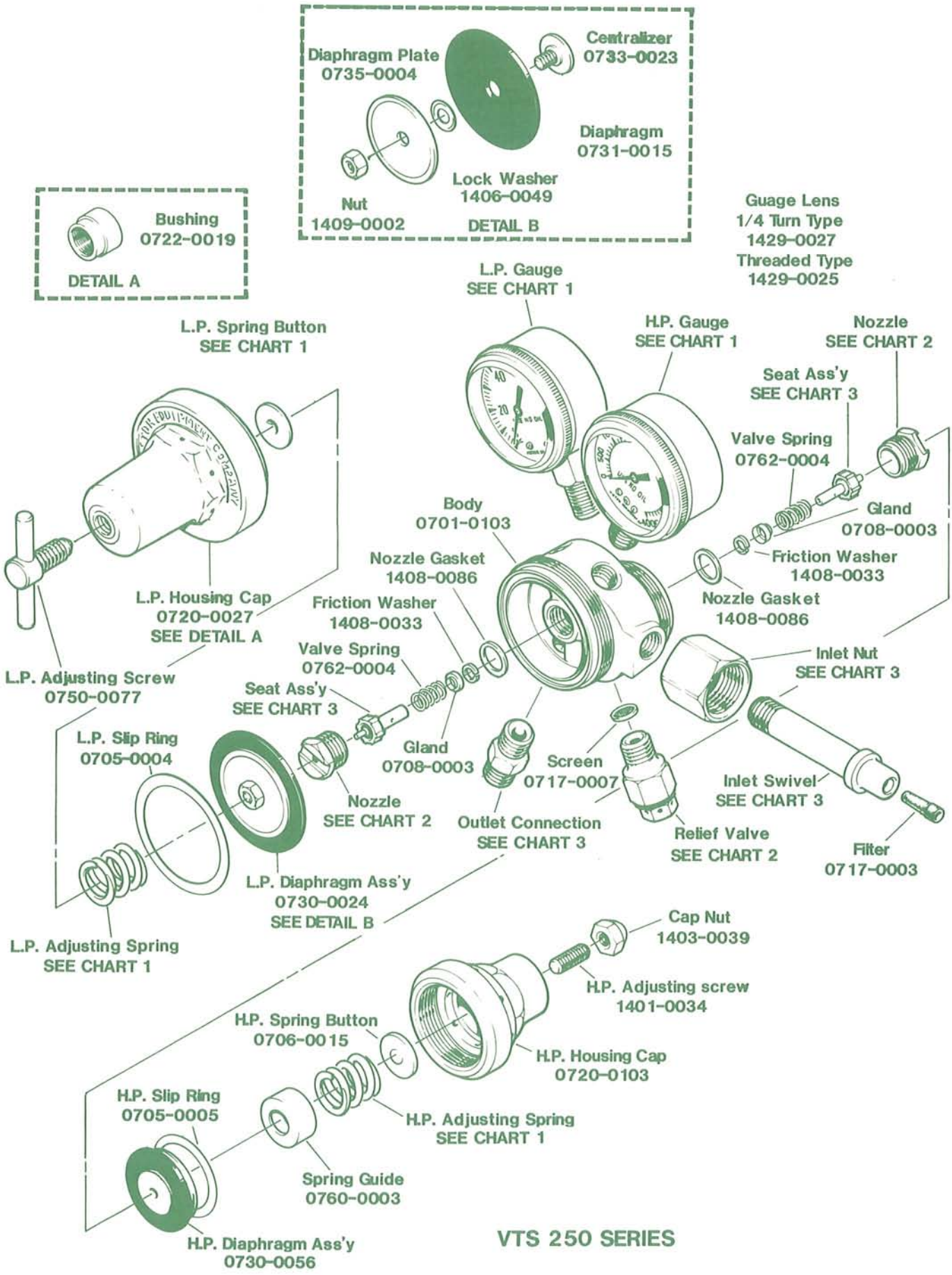
MODEL INFORMATION

Gas	CGA Inlet	A Range 2-15 PSIG	B Range 2-40 PSIG	C Range 4-80 PSIG	D Range 5-125 PSIG
Oxygen	540	VTS 250A	VTS 250B	VTS 250C	VTS 250D
Argon/Helium/Nitrogen	580	VTS 250A	VTS 250B	VTS 250C	VTS 250D
Air	346	VTS 250A		VTS 250C	VTS 250D
Hydrogen	350	VTS 252A	VTS 252B	VTS 252C	VTS 252D
Carbon Dioxide	320	VTS 253A	VTS 253B	VTS 253C	VTS 253D
Nitrous Oxide	326			VTS 253C	
Acetylene	300	VTS 260A			
Acetylene	510	VTS 260A			
Propane/MAPP®	510		VTS 261B		

WARNING

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 or repair, or modification of the product could result in damage to the product or injury to the operator.



VTS 250 SERIES

CHART 1

Description	VTS 253A VTS 252A VTS 250A	VTS 253B VTS 252B VTS 250B	VTS 253C VTS 252C VTS 250C	VTS 253D VTS 252D VTS 250D	VTS 260A	VTS 261B
L.P. Spring Button	0706-0001	0706-0001	0706-0018	0706-0001	0706-0001	0706-0001
L.P. Adj. Spring	0761-0076	0761-0060	0761-0077	0761-0080	0761-0076	0761-0060
L.P. Gauge	1424-0009	1424-0014	1424-0015	1424-0016	1424-0013	1424-0014
H.P. Gauge	1424-0019	1424-0019	1424-0019	1424-0019	1424-0017	1424-0017
H.P. Adj. Spring	0761-0054	0761-0054	0761-0054	0761-0054	0761-0055	0761-0054

CHART 2

Description	VTS 250	VTS 252	VTS 253	VTS 260	VTS 261
Nozzle	0702-0038	0702-0038	0702-0003	0702-0038	0702-0038
Relief Valve	0600-0016	N/A	0600-0016	N/A	N/A
Vented Relief Valve	N/A	0600-0070	N/A	N/A	N/A

CHART 3

Gas	CGA Inlet	Inlet Swivel	Inlet Nut	Seat Assembly	Outlet Connection
Oxygen	540	0967-0034	0967-0044	0740-0004	0950-0068
Argon/Helium/Nitrogen	580	0970-0005	0973-0003	0740-0004	0950-0017
Air (Breathing)	346	0972-0010	0972-0015	0740-0004	0950-0068
Hydrogen	350	0983-0008	0983-0003	0740-0137	0960-0029
Carbon Dioxide	320	0985-0004	0985-0030	0740-0019	0950-0017
Nitrous Oxide	326	0963-0010	0963-0015	0740-0004	0950-0080
Acetylene	510	0970-0005	0970-0003	0740-0092	0960-0029
Acetylene	300	0968-0014	0968-0003	0740-0092	0960-0029
Propane/Butane/MAPP®	510	0970-0005	0970-0003	0740-0092	0960-0029

NOTE: CGA inlet 540 requires a retaining ring part number 1406-0131. Inlet washer part number 1408-0065 is required for use with CGA 320 inlet connections.

SERVICE INSTRUCTIONS

Recommended tools and supplies for Disassembly and Assembly Procedures: Inlet swivel assembly plug, L.P. cap wrench RT-13, H.P. cap wrench RT-142, body wrench, RT-118, 7/16", 5/8", 11/16", 9/16" and 1/2" socket, socket wrench, torque wrench, LOCTITE #222 threadlock, TEFLON tape, LIQUID O-RING #151-L lubricant and bench vise.

Recommended tools and supplies for Test Procedures: Test gun (quick opening on/off valve) with #52 (.0635) restricting orifice, 2000 PSIG source of oil-free air or dry nitrogen, 400 PSIG intermediate pressure test gauge and LOCTITE #222 threadlock.

DISASSEMBLY PROCEDURES

1. Place the inlet swivel assembly plug in the bench vise and attach the regulator to it with the gauges face up.
2. Remove the L.P. adjusting screw from the L.P. housing cap.
3. Remove the L.P. housing cap from the body.
4. Remove the L.P. spring button, L.P. adjusting spring, L.P. slip ring and L.P. diaphragm from the body.
5. Remove the nozzle, seat assembly, valve spring, gland, friction washer and nozzle gasket from the body.
6. Install the body wrench on the body. Clamp the body wrench handle in the bench vise.
7. Remove the cap nut from the H.P. adjusting screw.
8. Turn the H.P. adjusting screw counterclockwise until there is no pressure on the H.P. adjusting spring.
9. Remove the H.P. housing cap from the body.
10. Remove the H.P. spring button, H.P. adjusting spring, spring guide, H.P. slip ring and H.P. diaphragm assembly from the body.
11. Remove the nozzle, seat assembly, valve spring, gland, friction washer and nozzle gasket from the body.
12. Remove the gauges from the body. **CAUTION:** DO NOT attempt to repair the gauges.
13. **CGA 540 REGULATORS ONLY**
    Remove the retaining ring from the inlet swivel.
14. Remove the inlet swivel from the body. Remove the inlet nut and filter from the inlet swivel.
15. Remove the outlet connection, relief valve and screen from the body.

CAUTION: Discard used slip rings, nozzle gaskets, filters, diaphragm assemblies, seat assemblies and friction dampers. Replace them with new parts each time you reassemble a regulator.

Cleaning Parts

Clean all metal parts with FREON TF solvent or equivalent. Always use cleaning solvents in accordance with the manufacturer's instructions. **WARNING:** DO NOT allow nonmetal parts to come in contact with the cleaning solvents. Cleaning solvents cause nonmetal parts to swell and stress crack. To clean these parts, use a mild soap solution followed by a thorough rinsing in water. Dry these parts completely prior to reassembling the regulator.

ASSEMBLY PROCEDURES

1. Clamp the body wrench in the bench vise and attach the body to it.
2. Apply a small amount of LOCTITE #222 threadlock to the second and third male threads of the outlet connection. Install the outlet connection in the body and tighten to a torque of 14 to 18 ft.-lbs.
3. Install the new filter in the inlet swivel and place the inlet nut on the inlet swivel.
4. Wrap two or three layers of TEFLON tape around the inlet swivel threads, leaving the first thread clean. Install the inlet swivel in the body and torque it to 20 to 25 ft.-lbs.
5. **CGA 540 REGULATORS ONLY**
   Place the retaining ring on the inlet swivel.
6. Apply two or three drops of LOCTITE #222 threadlock to the second and third male threads of the L.P. gauge, and wrap two or three layers of TEFLON tape around the threads of the H.P. gauge, leaving the first thread clean. Install the gauges in the body and torque each to 10 ft.-lbs. minimum.
7. Remove the body from the bench vise. To remove any brass chips, TEFLON tape and other contaminants that could cause regulator malfunction, connect the inlet to a source of oil-free air or dry nitrogen and slowly open and close the cylinder valve two or three times. Then blow out the body with pressurized oil-free air or dry nitrogen.
8. Clamp the body wrench in the bench vise and attach the body to it with the gauges face down.
9. Place the new nozzle gasket, new friction washer, gland, valve spring and new seat assembly in the body.
10. Place the nozzle in the body and torque to 16 to 20 ft.-lbs.
11. Place the H.P. diaphragm assembly, new H.P. slip ring and spring guide on the body.
12. Place the H.P. adjusting spring on the diaphragm assembly.
13. Place the H.P. spring button (raised side toward the adjusting spring) on the H.P. adjusting spring.

14. Carefully place the H.P. housing cap over the H.P. adjusting spring and screw the H.P. housing cap on the body. Torque the H.P. housing cap to 45 to 50 ft. – lbs.
15. Install the H.P. adjusting screw in the H.P. housing cap.
16. Place the inlet assembly swivel plug in the bench vise. Attach the regulator to it with the gauges face up.
17. Place the new nozzle gasket, new friction washer, gland, valve spring and new seat assembly in the body.
18. Place the nozzle in the body and torque to 16 to 20 ft. – lbs.
19. Place the L.P. diaphragm assembly and new L.P. slip ring on the body.
20. Place the L.P. adjusting spring on the diaphragm assembly.
21. Place the L.P. spring button (raised side toward the adjusting spring) on the H.P. adjusting spring.
22. Carefully place the L.P. housing cap over the L.P. adjusting spring and screw the L.P. housing cap on the body. Torque to 45 to 50 ft. – lbs.
23. Apply a small amount of LIQUID O-RING #151-L lubricant to the end and first few threads of the L.P. adjusting screw. Install the L.P. adjusting screw in the L.P. housing cap.

WARNING: For your safety and the safety of the operator, always perform the following test procedures after reassembling a regulator.

If the regulator does not perform properly during testing, refer to the Troubleshooting Chart in the VICTOR "Apparatus Service and Testing Procedures" manual for single and two stage regulators, (Form No. 56-886).

TEST PROCEDURES

WARNING: Test with oil-free air or dry nitrogen only! Always wear eye protection when testing a regulator. Never stand directly in front 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, slowly open and close the valve two or three times to remove any contaminants that may enter the regulator. Leave the manifold valve closed.
2. Attach the regulator to the test manifold or cylinder valve. The test manifold or cylinder valve must deliver 2000 PSIG of oil-free air or dry nitrogen for VTS 250 or 250 PSIG for VTS 260 and VTS 261.
3. Install the intermediate test gauge in the relief valve port.
4. Turn the adjusting screw clockwise two or three turns to open the seat. Slowly open and close the test valve two or three times. Leave the test valve closed.
5. Attach the test gun, with a #52 restricting orifice, to the outlet of the regulator. Turn the adjusting screw counterclockwise until there is no pressure on the adjusting spring.
6. **PRESETTING THE HIGH PRESSURE STAGE**
   A. Slowly open the manifold or cylinder valve and test gun. **NOTE:** A low pressure reading may appear on the L.P. gauge or intermediate pressure test gauge at this time. This is a normal condition. If the pressure on the L.P. gauge continues to rise, there is a leak in the H.P. stage of the regulator.
   B. Turn the H.P. adjusting screw clockwise two or three turns to pressurize the regulator slightly.
   C. If the L.P. gauge begins to indicate a rise in pressure, turn off the manifold or cylinder valve, disassemble the regulator and correct the problem.
   D. Close the test gun and turn the H.P. adjusting screw clockwise until the intermediate test gauge reaches the appropriate pressure listed below:
      A Range: 115 PSIG (VTS 250)
      B Range: 140 PSIG (VTS 250)
      C & D Range: 180 PSIG (VTS 250)
      A Range: 75 PSIG (VTS 260)
   E. Observe the intermediate pressure test gauge for five (5) minutes. During the first two (2) minutes, slow shut-off (delivery rise due to the seat closing slowly) should not exceed 2 PSIG.
   F. When the correct pressure is achieved install the cap nut on the H.P. adjusting screw and tighten.
   G. Close the manifold or cylinder valve.
   H. Release the pressure from the regulator by turning the L.P. adjusting screw clockwise several turns and open the test gun.
   I. Remove the intermediate pressure test gauge from the body and install the screen in the relief valve port.
   J. Apply a small amount of LOCTITE #222 threadlock to the second and third male threads of the relief valve and install the relief valve in the body and torque to 18 ft. – lbs.

7. **CREEP TEST/SLOW SHUT-OFF TEST**
   A. Slowly open the test valve.
   B. With the test gun closed, adjust the regulator to deliver the appropriate pressure listed below:
      A Range: 5 PSIG
      B Range: 10 PSIG
      C Range: 10 PSIG
      D Range: 20 PSIG
   C. Open and close the test gun several times to stabilize the regulator. Leave the test gun closed.
   D. Observe the gauges for five (5) minutes. During the first minute, slow shut-off (delivery rise due to the seat not closing quickly) should not exceed 1 PSIG. During the next four (4) minutes no creep (increase in L. P. pressure) is allowed.
8. **DROP TEST**
   A. With the test gun closed, adjust the regulator to the appropriate pressure listed below:
      A Range: 15 PSIG
      B Range: 40 PSIG
      C Range: 80 PSIG
      D Range: 125 PSIG
   B. Open the test gun and note the new L. P. gauge reading. The drop (the difference in delivery from no flow to flowing) should not exceed the appropriate pressure listed below:
      A Range: 5 PSIG
      B Range: 10 PSIG
      C Range: 10 PSIG
      D Range: 20 PSIG
9. **LEAK TEST**
   A. With the test gun closed, adjust the regulator to deliver the maximum pressure.
   B. Close the manifold or cylinder valve.
   C. Observe the gauges for five (5) minutes. If the H. P. gauge reading drops, there is a leak in the cylinder valve, inlet fitting, or high pressure gauge. If the L.P. gauge reading drops, there is a leak in the downstream equipment or low pressure gauge. If the H.P. gauge reading drops, at the same time the low pressure gauge reading increases, there is a leak in the low pressure regulator seat. In either case, disassemble the regulator, replace any suspect or damaged parts, reassemble and retest the regulator.
10. 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.
11. Remove the test gun and test gauge from the regulator.
12. Remove the regulator from the test manifold or cylinder valve.

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Form No. 56-0623 (4/02)

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