INSTRUCTIONS FOR MODEL SSC LOW DELIVERY PRESSURE GAS REGULATORS

IMPORTANT

These instructions are for experienced operators who know the general principles and safety precautions to be observed in handling specialty gases and operating gas regulation equipment. If you are not certain you fully understand the safety precautions for handling gases, we urge you to obtain and read the Material Safety Data Sheet (MSDS) for each gas being used.

Do not permit untrained persons to install, operate, or maintain this regulator. Do not attempt to install or operate this regulator until you have read and fully understand these instructions. If you do not fully understand these instructions, contact your Advanced Specialty Gas Equipment Distributor.

Be sure this information reaches the operator. Your supplier has extra copies.

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SAFETY PRECAUTIONS

Protect yourself and others. Read and understand the following instructions before attempting to use these regulators. Failure to understand and follow these instructions could result in serious personal injury and/or damage to equipment.

- Know and understand the physical and chemical properties of the gas being used.
- Observe general precautions for the use of gases.
- Observe safety precautions for the gas being used.
- Read and follow precautions on cylinder labels.
- Never use these regulators with gases not compatible with the materials of construction. The use of gases not compatible with the materials of construction may cause damage to equipment or injury to personnel.
- If flammable gases are used with these regulators, do not locate the regulators near open flames or any other source of ignition.
- If toxic or flammable gases are used with these regulators, emergency equipment applicable to the gases in use should be available in the operating area.
- Many gases can cause asphyxiation by displacing oxygen in the atmosphere. Make certain the area where regulators are operated is well ventilated. Provide a device to warn personnel of oxygen depletion in the work area.
- Do not release toxic or flammable gases in the vicinity of personnel. Use this equipment only in well ventilated areas. Vent gases to the outside atmosphere, and in an area away from personnel. Be sure that venting and disposal methods are in accordance with Federal, State and local requirements. Locate and construct vent lines to prevent condensation or gas accumulation. Be sure the vent outlet cannot be obstructed by rain, snow, ice, insects, birds, etc. Do not interconnect vent lines; if more than one vent is needed, use separate lines.
- Relief devices should be installed and properly vented in all gas handling systems to protect against regulator failure and overpressurization.
- Never use oil or grease on these regulators. Oil and grease are easily ignited and may combine violently with some gases under pressure.
- Never connect the regulator to a supply source having a pressure greater than 250 psig. Damage to equipment or injury to personnel may result.

MANUFACTURER STATEMENT

The information contained in this instruction booklet has been compiled by Advanced Specialty Gas Equipment Corp., (the Company), from what it believes are authoritative sources and is offered solely as a convenience to its customers. While the Company believes that this information is accurate and factual as of the date printed, the information including design specifications is subject to change without prior notice.

DESCRIPTION

The Model SSC regulator provides accurate pressure control of inlet pressure up to 250 psig down to delivery pressures below 15 psig. Although mainly designed for use with liquefied hydrocarbons such as Propane, Butane or Isobutane it is suitable for use with noncorrosive gases where high purity is not required.

WARNING: Do not use this regulator with Hydrogen or Helium. Although these gases are compatible with the materials of construction, experience shows that the seals are not sufficient to prevent leakage of these gases. This regulator is also not recommended for Oxygen.

The pressure opening design of the Model SSC allows the regulator to open when inlet pressure is applied and close only when the preset pressure is reached on the downstream side of the regulator. Although primarily used as a line regulator, it may be optionally ordered as a cylinder regulator for use with gases having cylinder pressures below 250 psig. Some of the lower range models (ie: SSC-0, SSC-1) require lower inlet pressure (<100 psig) to be able to provide the full adjustable delivery range.

The Model SSC regulator is available in five separate delivery pressure ranges from 3.5–8" H_2O to 10–15 psig. The regulators are shipped preset at their maximum delivery pressure. The setting can be changed if desired. Each regulator is supplied with a Teflon® packed metering valve to provide downstream flow control and shut-off.

INSTALLATION

WARNING: Before attempting to install and operate these regulators, read and fully understand the safety precautions on page 3 in this booklet. Failure to follow the safety precautions may result in serious personal injury and/or damage to equipment.

1. Inspect the regulator and cylinder valve for physical damage and contamination. Do not connect the regulator if you detect oil, grease or damaged parts. If the regulator is contaminated or damaged contact your Advanced Specialty Gas Equipment Distributor to have the regulator properly cleaned or repaired (see "Repairs"). Contact your gas supplier if the cylinder valve is damaged or contaminated.

   Note: Make sure that the components and materials used in this gas handling system are compatible with the gas and have the proper pressure rating.

WARNING: Never connect the regulator to a supply source having a pressure greater than 250 psig. Damage to equipment or injury to personnel may result.

2. Close the regulator outlet valve by turning hand knob clockwise.
3. If regulator is to be used as a line regulator, mount the regulator using the threaded pads provided at the base. Ensure that inlet and outlet process lines are at atmospheric pressure before connecting. Connect regulator to gas lines using Teflon® tape on pipe threads to prevent galling.

   If the regulator is to be used as a cylinder regulator, secure the cylinder in place using a suitable restraining device (such as a Model SG6202 bench clamp or Model SG6203 wall clamp). Connect regulator directly to the cylinder valve and securely tighten connection nut. Ensure that the delivery line is at atmospheric pressure before connecting regulator outlet. Connect regulator outlet to the delivery line using Teflon® tape on pipe threads to prevent galling.

   Note: The use of joint compounds, pastes or lubricants other than Teflon® tape should be avoided since they may contaminate the regulator and process gas.

LEAK TESTING AND PURGING

1. If it is nonhazardous, use the process gas to leak test and purge the regulator and gas delivery system.

   If the process gas is hazardous (flammable and/or toxic) use clean dry nitrogen as a purge gas to leak test and purge the regulator and gas delivery system.
2. Isolate downstream side of gas delivery system by closing instrument or process isolation valve.

   Note: The pressure opening design of the Model SSC causes the regulator to open when inlet pressure is applied and close only when the preset pressure is reached on the downstream side of the regulator.
3. Ensure that the regulator outlet valve is closed.
4. Since the regulator is preset (to the maximum setting within the pressure range), it is necessary only to apply pressure (not over 250 psig) to the upstream side to obtain downstream regulated pressure. Stand to one side of the regulator and slowly open the purge gas. Check outlet gauge for pressure on the downstream side of the regulator.
5. Slowly open outlet valve by turning hand knob counterclockwise until knob stops turning.
6. Leak check all connections with either a soap solution, such as Snoop® or a gas leak detector. If a leak is detected, vent system to atmospheric pressure and repair. Do not repair any leaks while system is under pressure.
7. Purge entire system of air if the process gas is hazardous or sensitive to atmospheric contaminants.
8. Vent system to atmospheric pressure. Close system vent valve. Close regulator outlet valve by turning hand knob clockwise.

OPERATION

WARNING: Never operate a regulator under any circumstances if it is leaking or otherwise malfunctioning. DO NOT repair any leaks while system is under pressure. Damage to equipment and/or injury to personnel may result.

1. Close the regulator outlet valve by turning hand knob clockwise.
2. Ensure that any purge and system vent valves are closed.
3. Slowly open cylinder valve or supply valve to admit process gas into the regulator.
4. Slowly open regulator outlet valve and adjust to obtain the desired flow.

ADJUSTING DELIVERY PRESSURE

1. If the preset delivery pressure requires adjustment, close the regulator outlet valve by turning hand knob clockwise.
2. Slowly apply pressure (not over 250 psig) to the regulator inlet.

   Note: Some of the lower range models (ie: SSC-0, SSC-1) require lower inlet pressure (<100 psig) to be able to provide the full adjustable delivery range.
3. Remove the protective cap (Fig. 1, see pg. 9) by turning cap counterclockwise.
4. The adjusting spring retainer located under the protective cap has a hex slot for a 3⁄8" allen wrench to be used for range adjustment. Turn the spring retainer clockwise to increase delivery pressure, counterclockwise to reduce pressure. If pressure is reduced, open outlet valve slightly to vent the higher pressure into the downstream system.
5. Replace the protective cap.

SHUTDOWN

1. If regulator is not to be removed from service, close cylinder or process supply valve. Always keep cylinder or supply valve closed whenever the system is not in use.
2. Close regulator outlet valve by turning hand knob clockwise.

REMOVAL FROM SERVICE

1. Close cylinder or process supply valve. Always keep cylinder or supply valve closed whenever system is not in use.

WARNING: Hazardous gases must be discharged into a safety vent. Be sure to use a venting procedure that is environmentally acceptable and complies with Federal, State and local requirements.

2. Vent the upstream and downstream system until the pressure gauge reads zero psig. If regulator was used with a hazardous gas, purge the regulator and entire system with clean dry nitrogen gas.
3. After purging and/or venting is complete, close regulator outlet valve by turning hand knob clockwise.
4. Remove the regulator from the system.
5. If the regulator is connected to a cylinder, always remove the regulator and reinstall cylinder cap before moving cylinder.

REPAIRS

If a regulator leaks or malfunctions, take it out of service immediately. Do not attempt to repair these regulators. Repairs should be made by Advanced Specialty Gas Equipment Corp. who have the special tools, test equipment and trained personnel required to make a safe repair. Contact your Advanced Specialty Gas Equipment Distributor to arrange for repair.

Warranty Repairs are only available through Advanced Specialty Gas Equipment Corp., and will be performed at no charge for parts and labor. For information on warranty, see the last page of this instruction booklet.

Non-Warranty Repairs are available through your distributor. Upon receipt at the factory, the regulator will be inspected and you will be contacted by your distributor with a repair cost estimate. No item will be repaired until approval is received. There will be an evaluation charge assessed for equipment not repaired.

SPECIFICATIONS

Maximum Inlet Pressure	250 psig*
Minimum Inlet Pressure	5 psig
Delivery Pressure Range	See Table 1
Delivery Pressure Gauge	See Table 1
Gauge Size	2 ½ in. Dial
Flow Capacity	See Figure 2
Inlet Connections	¼ in. NPT female (CGA 510 available as an option)
Outlet Connection	¼ in. NPT male (on outlet valve)
Weight (approx.)	4 lbs.

*Models SSC-0 and SSC-1 may require lower inlet pressure (<100 psig) to be able to adjust the outlet pressure for the full delivery pressure range.

MATERIALS OF CONSTRUCTION

Regulator Body and Bonnet	Die Cast Zinc
Outlet Block, Outlet Valve and Gauges	Brass
Other Metal Parts Exposed to Gas	Zinc, Brass and Stainless Steel
Seat	Buna-N®
Diaphragm	Buna-N®
Seals	Buna-N® and Teflon®

Table 1

Part No.	Delivery Pressure (psig) Range	Gauge
SSC-0	3.5–8" H_2O (0.13 – 0.29 psig)	0–35" H_2O
SSC-1	0.5–1.0	0–32 oz.
SSC-5	1.1–5.0	0–10
SSC-10	5.1–10.0	0–30
SSC-15	10.1–15.0	0–30

Note: Suffix regulator part number with 510 to order regulator with optional CGA 510 inlet connection. Example: SSC-5–510

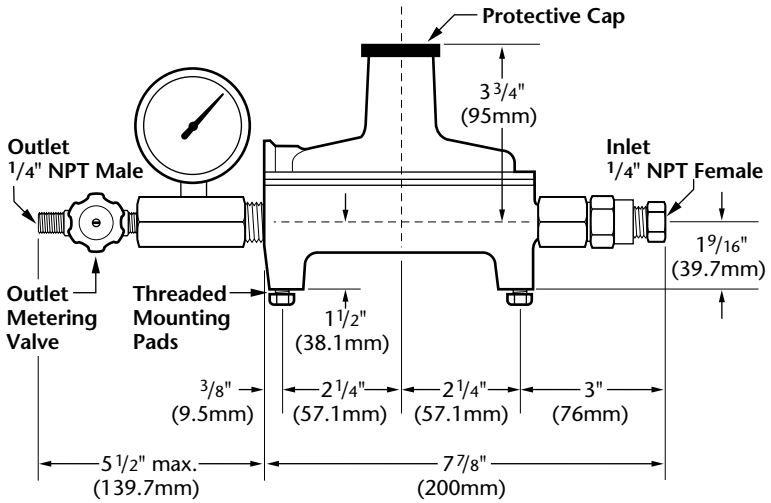
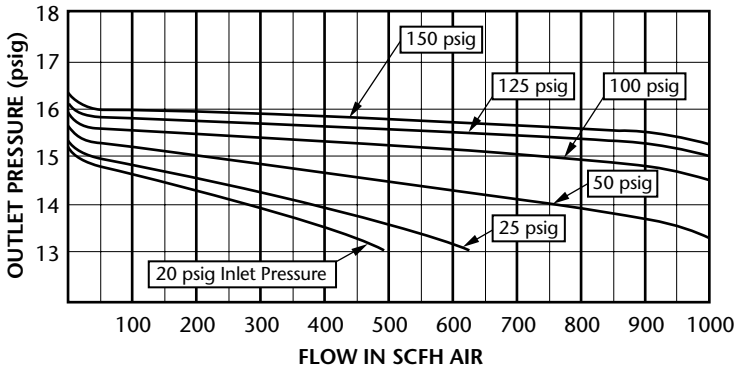
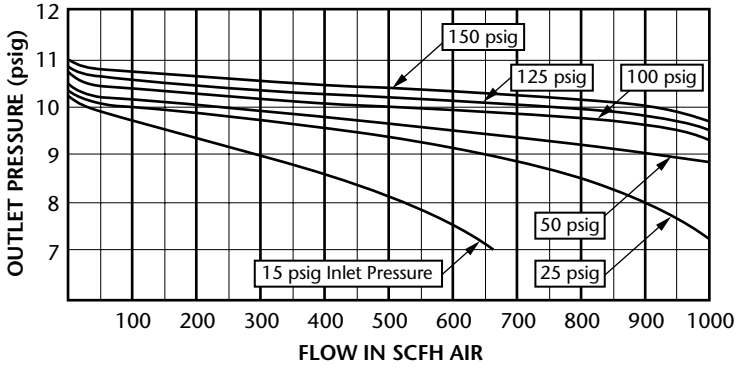


Figure 1 – Model SSC





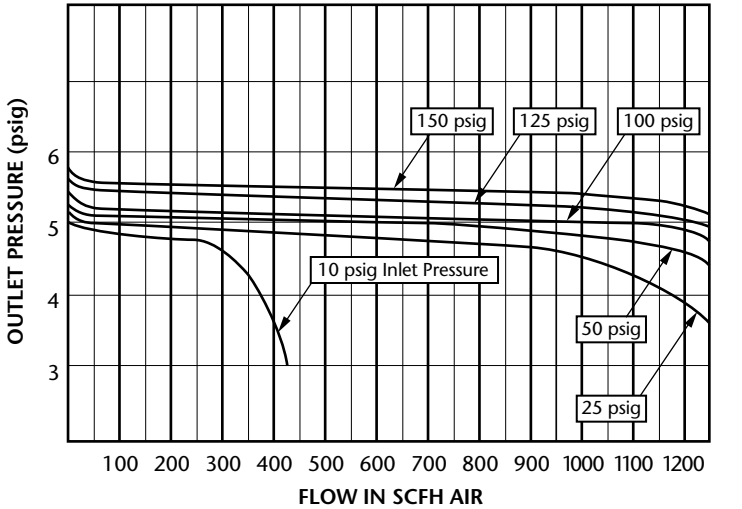


Figure 2 – Typical Performance Model SSC (with outlet valve and pipe nipple removed)

WARRANTY

Advanced Specialty Gas Equipment Corp.,(the Company), warrants to the initial purchaser of each regulator described herein, that such equipment will be free from defects in material and workmanship which result in breakdown or failure under normal use during a period of 12 months from date of shipment by the Company if used and maintained according to Advanced Specialty Gas Equipment written instructions. Purchaser is aware that this equipment is designed for specific applications and that using this equipment with the wrong or improperly purged gas or at the wrong pressure may damage or corrode the unit and cause personal injury. Purchaser must confirm that this equipment is compatible with the gas being passed through it. If there is any doubt about compatibility, consult your Advanced Specialty Gas Equipment Corp. distributor.

The Company's liability under this warranty shall be limited to the repair, or at its option, replacement or refund of the purchase price, of such equipment which proves to be defective, provided; however, that this warranty shall only apply if the purchaser (1) gives the Company written notice within ten (10) days after discovery of such defect, (2) immediately on discovery of the claimed defect, discontinues all use of such equipment, and (3) returns such equipment freight prepaid to plant of manufacture.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SPECIFIED HEREIN. NO WARRANTIES BY ADVANCED SPECIALTY GAS EQUIPMENT CORP. (OTHER THAN WARRANTY OF TITLE AS PROVIDED IN THE UNIFORM COMMERCIAL CODE) SHALL BE IMPLIED OR OTHERWISE CREATED UNDER ANY APPLICABLE LAW, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. No claim against the Company of any kind, whether as to equipment delivery or for nondelivery of equipment and whether or not based on contract, warranty, negligence, strict liability in tort or otherwise, shall be greater in amount than the purchase price of the equipment in respect of which such claim is made. Without limiting the generality of the foregoing, Advanced Specialty Gas Equipment Corp. shall not be liable for any special, indirect, or consequential damage, such as failure of parts resulting from corrosion.

If it is determined by Advanced Specialty Gas Equipment Corp. that the equipment is to be repaired or replaced under the terms of this warranty, the cost of returning said equipment to the initial purchaser will be paid by the Company. If, however, equipment returned to the Company in connection with a claim under this warranty is found by the Company not to be defective hereunder, then such equipment will be returned to the initial purchaser, shipping charges collect, and additionally, a service charge will be paid by the purchaser to the Company to cover the cost of handling and testing such equipment.

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