



Installation, Operation, and Maintenance Instructions

MODEL 5660/5670

February 2003

INTRODUCTION

Scope

This manual provides instructions for the installation, adjustment, maintenance, and parts ordering of all Model 5660/5670 high-pressure regulators.

Description

Model 5660/5670 regulators are self-operated, high-pressure regulators which can be used in many other applications as high-pressure reducing regulators for various gases. Model 5660/5670 regulators can also be used where high-pressure gas must be reduced for use as pilot supply pressure in pilot-operated regulators or as loading pressure in pressure-loaded regulators.

Model 5660/5670 regulators provide outlet pressures to 225 psig (15.5 bar) in three spring ranges. The Model 5660 major components are constructed of brass. The Model 5670 is constructed of stainless steel with TFE seals.

SPECIFICATIONS

Connections:

1/4" NPT (one inlet and two outlet connections)

Operating Temp.:

-70 to 225°F

Max Inlet Pressure:

6000psig

Outlet Ranges:

0 – 125 psi

0 – 150 psi

0 – 225 psi

Materials of Construction:

See Parts List

Flow Capacities (SCFH of 0.6 SG Gas)

Inlet Pressure	Outlet Pressure	Outlet Range		
		0-120 psig	0-150 psig	0-225 psig
250	20	700	1300	-
	40	120	400	-
	50	60	190	1300
	60	-	90	850
	80	-	-	400
	100	-	-	125
	115	-	-	40
2000	50	3200	7800	-
	60	-	1300	-
	85	-	-	10000
	100	-	-	2800
	115	-	-	500

INSTALLATION

WARNING: Over-pressuring a regulator or associated equipment may cause leakage, part damage, or personal injury due to bursting of pressure-containing parts or explosion of accumulated gas. Do not install a regulator where service conditions can exceed the specifications listed in this manual or the specifications of any applicable local, state, or Federal codes and regulations.

Use qualified personnel when installing, operating, and maintaining these regulators. Make sure that there is not damage to or foreign material in the regulator and that all tubing and piping are clean and unobstructed. The regulator may be installed in any position. Apply pipe compound to the pipeline threads. Connect inlet piping or tubing to the 1/4" NPT screwed connection marked "In" and outlet piping or tubing to one of the 1/4" NPT screwed connections marked "Out". Install a pressure gauge or pipe plug in the unused outlet connection.

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If continuous operation of the system is required during inspection or maintenance, install a three-valve bypass around the regulator.

WARNING: A regulator may vent some gas to the atmosphere. In hazardous gas service, vented gas may accumulate, causing personal injury or equipment damage due to fire or explosion. Vent a regulator in hazardous gas service to a remote, safe location.

The Model 5660 regulator is optionally available with a 1/4" NPT female connection on the spring case for remote venting (tapped exhaust). A tapped exhaust connection is a standard feature of the Model 5670. To remotely vent the spring case, remove the screen, if present, and connect 1/4" piping or tubing to the spring case connection. The piping or tubing should (a) vent the spring case to a safe location, (b) have as few bends as possible, and (c) have a screened vent on its exhaust end.

Each regulator is factory-set at the midpoint of the regulator spring range. If pressure adjustment is necessary, refer to the "Startup" section. In all cases, check the spring setting to make sure it is correct for the application.

STARTUP

With installation completed and downstream equipment adjusted, slowly open the upstream and downstream block valves while using pressure gauges to monitor pressure. If adjustment is necessary, remove the adjusting screw cap and turn the adjusting screw clockwise to increase the set pressure or counterclockwise to decrease the set pressure. Monitor pressure with gauges during adjustment. When adjustment is complete, replace the adjusting screw cap. If the desired outlet pressure is not within the range of the regulator spring, install a spring with the desired range according to the "Maintenance" section.

SHUTDOWN

First, close the upstream shutoff valve, and then, close the downstream shutoff valve. Next, open the vent valve between the regulator and the downstream shutoff valve and open the vent valve between the regulator and the upstream shutoff valve. If vent valves are not installed, safely bleed off both inlet and outlet pressures and check that the regulator contains no pressure.

MAINTENANCE

Regulator parts are subject to normal wear and must be inspected and replaced as necessary. The frequency of inspection and parts replacement depends on the severity of service conditions and the requirements of local, state, and federal rules and regulations.

Instructions are given below for disassembly and assembly of parts.

WARNING: To avoid personal injury or equipment damage from sudden release of pressure or explosion of accumulated gas, do not attempt any maintenance or disassembly without first isolating the regulator from system pressure and relieving all internal pressure from the regulator.

DISASSEMBLY

The following procedure describes how to completely disassemble the regulator. When part replacement or inspection is required, complete only those steps necessary to accomplish the job.

1. Remove the adjusting screw cap.
2. Turn the adjusting screw counterclockwise to remove spring compression.
3. Remove the bottom housing, bottom housing seal, and tension spring.
4. Unscrew the seat block screw from the yoke.
5. Remove the seat housing and seat body.
6. Remove the bonnet screws, and separate the bonnet from the body.
7. Remove the upper spring retainer and spring.
8. Unscrew the diaphragm locknut, and remove the diaphragm plate, the diaphragm, the diaphragm gasket, and the diaphragm washer.
9. Remove the yoke from the body.
10. Unscrew the supply nozzle. Examine seating edge of supply nozzle. Replace with a new part if worn or nicked.

ASSEMBLY

The procedure assumes that the regulator was completely disassembled. If not, start these instructions at the appropriate step.

1. Screw the supply nozzle into the regulator.
2. Insert the yoke into the regulator. The seat body has four valve discs, one on each side. Inspect the valve discs and select the one to be used. Insert the seat body and seat housing into the regulator and fasten to the yoke with the seat block screw.
3. Place the bottom housing seal in the seal pocket of the regulator body. Place the tension spring in the bottom housing, and thread it into the regulator.
4. Put the diaphragm gasket on the regulator body.
5. Place the diaphragm washer, the diaphragm, and the diaphragm plate on the yoke. Make sure the diaphragm convolutions are toward the spring, and secure the parts by threading the diaphragm locknut onto the yoke.
6. Place the spring and upper spring retainer on the diaphragm plate.
7. Position the bonnet over the spring and on the regulator body. Orient the bonnet vent or vents as necessary. Insert the cap screws, and tighten them only finger-tight.
8. Thread the adjusting screw into the bonnet just far enough to slightly compress the spring. Securely tighten the cap screws, and refer to the "Startup" section for adjustment procedures.

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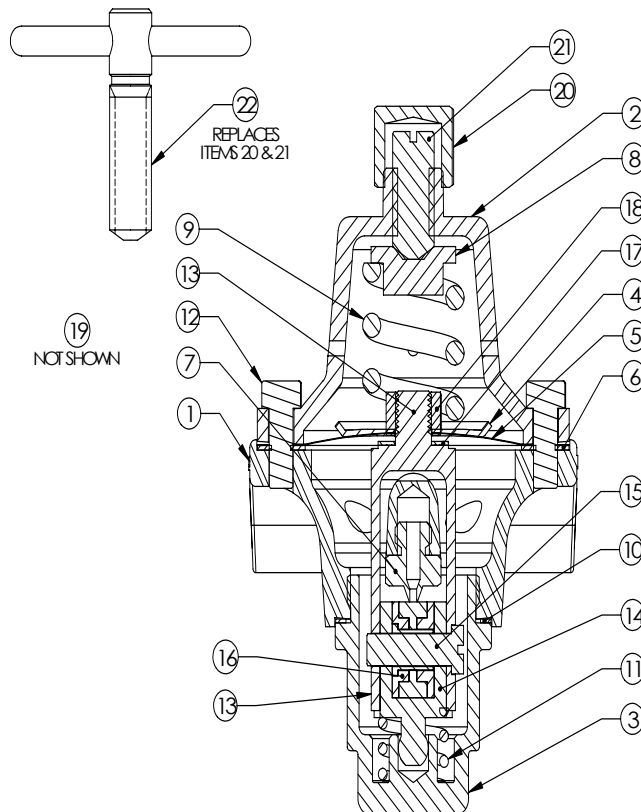
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Model 5660 Parts List

ITEM	DESCRIPTION	MATERIAL	PART NO.	QTY.
1	Body	Brass	56606	1
2	Bonnet	Brass	56610	1
3	Bottom Housing	Brass	56609	1
4	Diaphragm Plate	Steel	56620	1
* 5	Diaphragm	302 SST	56619	1
* 6	Diaphragm Gasket	Nitrile	56618	1
7	Supply Nozzle	316 SST	56615	1
8	Spring Retainer	316 SST	56614	1
9	Spring - 0-125	17-4 SST	56621	1
	Spring - 0-150		56622	
	Spring - 0-225		56623	
*10	Seal Bottom Housing	PTFE	56613	1
11	Tension Spring	Zinc Plated Wire	56603	1
12	Hex Cap Screw .250-20UNF X .625	SST	56628	6
13	Yoke	Brass	56608	1
14	Seat Housing	Brass	56607	1
15	Seat Block Screw	316 SST	56616	1
*16	Seat Body	Brass/Nylon	56625	1
*17	Diaphragm Washer	PTFE	56617	1
*18	Hex Nut .375-24UNF	Steel - Zinc Plated	51360	1
19	Inlet Screen	SST	56631	1
20	Cap	Brass	56611	1
21	Slot Head Adjusting Screw	SST	56626	1
22	Tee Handle Adjusting Screw	Brass	56600	1

* INCLUDED IN REPAIR KIT

DESCRIPTION	PART NO.
Repair Kit	84012



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ITEM NO.	QTY.	PART NO.	MATERIAL	DESCRIPTION
1	1	51430	SS	NUT-HEX .375-24
2	1	56603-1	INCONEL	SPRING LOWER
3	1	56607-1	SS	Seat Housing
4	1	56608-1	SS	Yoke
5	1	56613	PTFE	SEAL
6	1	56614	SS	GUIDE-SPRING
7	1	56615	SS	NOZZLE-SUPPLY
8	1	56616-1	SS	SCREW
9	1	56617	PTFE	Washer-Diaphragm
10	1	56619	SS	DIAPHRAGM
11	1	56620-1	SS	PLATE-DIAPHRAGM
12	1	56621	SS	SPRING - 0-125
		56622		SPRING - 0-150
		56623		SPRING - 0-225
13	1	56625-1	SS	SEAT ASSY
14	1	56626	C.S.	SCREW .437-20
15	6	56628	SS	Screw Hex-250-20
16	1	56631	SS	SCREEN INLET
17	1	56633	TFE	GASKET-DIAPHRAGM
18	1	56634	SS	Cap - Stem
19	1	56635	SS	BONNET
20	1	56637	VITON	O-RING
21	1	56650	SS	Body
22	1	56651	SS	CAP

