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WARNING

Conoflow's products are designed and manufactured using materials and workmanship required to meet all applicable standards. The use of these products should be confined to services specified and/or recommended in the Conoflow catalogs, instructions, or by Conoflow application engineers.

To avoid personal injury or equipment damage resulting from misuse or misapplication of a product, it is necessary to select the proper materials of construction and pressure-temperature ratings which are consistent with performance requirements.

INSTRUCTION AND MAINTENANCE MANUAL **GFH45 PRESSURE REGULATOR**

CAUTION: These instructions should be read carefully prior to installation, use or maintenance.

GENERAL PRODUCT OVERVIEW

Conoflow's GFH45 Series Airpak®, Filter-Regulator is used to provide clean, accurate air to instruments, valves, positioners, transducers and other pneumatic control devices. This unit's design provides high flow capability, durable materials of construction and bubble tight shut-off.

The GFH45 Regulator has a maximum supply pressure capability of 300 PSIG (2.07 MPa) with control output settings of 0-25, 0-60 and 0-125 PSIG (0-172, 0-414 and 0-862 kPa). This brass filter regulator boasts a high flow delivery rate and excellent droop characteristic.

This regulator is offered with ¼" NPT inlet and outlet ports, two outlet gauge ports, and brass construction. A handwheel or wrench knob adjustments are standard.

CAUTION: Maximum Supply Pressure is 300 PSIG (2.07 MPa)

WARNING: This product is not recommended for use with flammable liquids or gasses.

MATERIALS OF CONSTRUCTION

Nozzle Assembly: Brass with Buna N Soft Seat
Range Spring: Zinc Plated Carbon Steel
Diaphragm Assembly: see CED Code
Bowl: Brass
Body: Brass
Bonnet: Brass

SPECIFICATIONS

Maximum Supply Pressure: 300 psig (2.07 MPa)

Outlet pressure ranges are determined by the last character in the regulator model number.

"C" 25 psig (172 kPa)

"F" 60 psig (414 kPa)

"G" 125 psig (862 kPa)

Proof Pressure: 150% of maximum operating

Burst Pressure: 400% of maximum operating

Flow Capacity: 20 scfm (see flow chart)

Temperature Range: -20 °F to 165 °F
(-29 °C to 74 °C)

Sensitivity: 0.02 psi (0.14 kPa)

Connections: ¼" NPT Inlet and Outlet Ports,
Two-¼" NPT Gauge Ports
(90° from Outlet Port)

Weight: 3.4 lb (1.55 kg)

REGULATOR CLEANING

The GFH45 pressure regulator is cleaned to ITT Conoflow specification ES8A 01 1 when option B is selected in position 6 of the model number.

INSTALLATION

CAUTION: The regulator must be installed with the draincock downward to allow accumulated fluid to drain out when the draincock is opened.

CAUTION: Moisture and particulates can be discharged at high speed when draincock is opened.

The GFH45 can be line mounted, panel mounted, or wall mounted (reference G6018006 wall-mount bracket).

Teflon tape is the preferred thread sealant for the 1/4" NPT connections.

Connect the supply to the port marked "IN". The other ports are outlet and factory plugged outlet gauge ports.

WARNING: If the supply line is connected to the outlet port, regulator damage or unexpected flow through the regulator could occur.

Prior to applying inlet pressure, double check the connections and assure the wrench knob or hand wheel is backed out sufficiently to unload the range spring in the bonnet.

Carefully apply inlet pressure and check the supply connection for leakage. Adjust the output pressure by rotating the wrench knob or hand wheel clockwise and check the outlet connection for leakage.

WARNING: The handwheel or wrench knob can vibrate loose and fall out if the jam nut is not tightened.

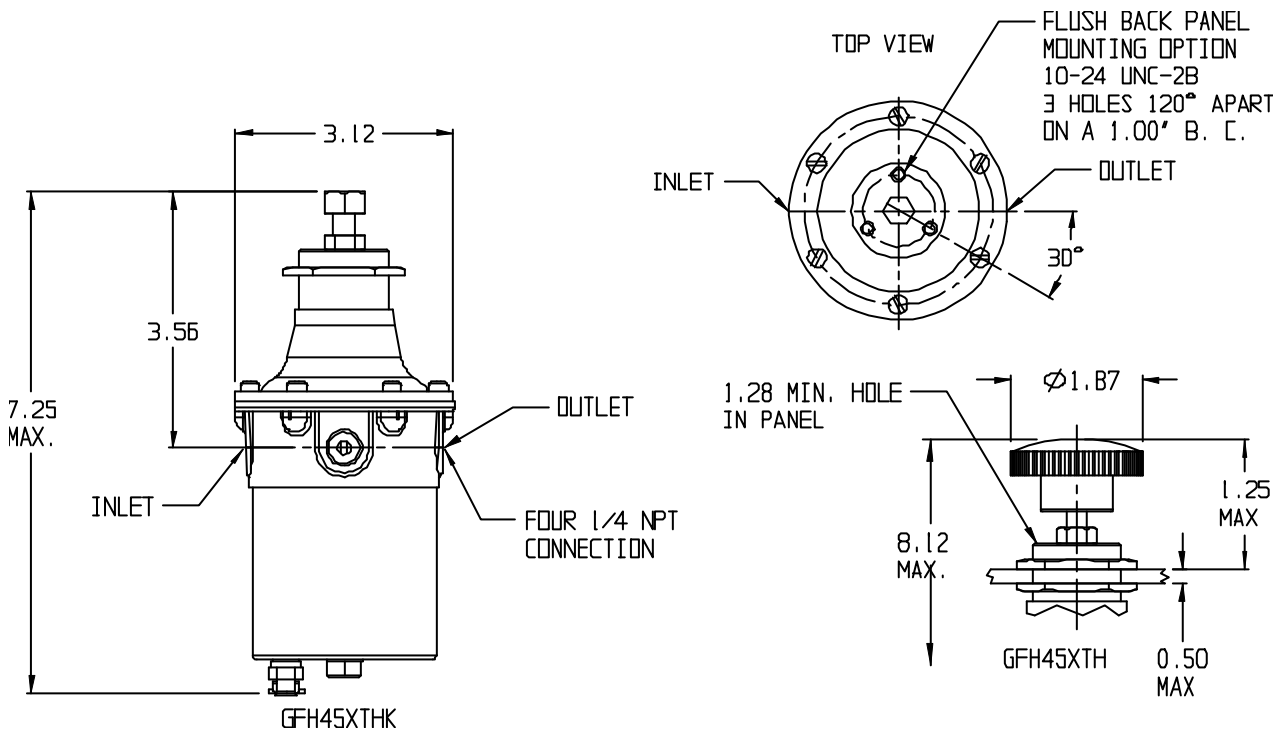


Figure 1 – Regulator dimensions with 1/4" NPT connections. For certified dimensional drawing, see A17-83.

CONTROL ENGINEERING DATA

Control Engineering Data is intended to provide a single source from which one can determine, in detail, the full scope of the product line. In addition to materials of construction, diaphragm selection, filtering capabilities, it also provides all necessary data for the mounting options and control output setting ranges. Control Engineering Data also provides a means of communicating, by way of an 12 digit model number, a full description of the product selection.

Characters 1-5: (Filter Regulator Model No.)
GFH45

Character 6: Filter Options

- A** = Cellulose (10 micron) – optional
- B** = Stainless Steel (40) micron-cleaned for oxygen service) – optional
- C** = Stainless Steel (40 micron) – optional
- X** = Polypropylene (35 micron) – standard

Character 7: Bonnet Options

- F** = Front mount - optional
- T** = Threaded Bonnet - standard

Character 8: Adjustment Options

- H** = Handwheel - optional
- K** = Knob (Wrench Style) – standard
- P** = Preset (Factory Output Setting CAN be field adjusted) – optional
- C** = Tamperproof (Factory Output Setting Cannot be field adjusted)- optional

NOTE: 1. Customer must specify OUTPUT SETTING, SUPPLY PRESSURE, and FLOW.

Character 9: Diaphragm Selection

- E** = Buna "N" (w/Relief, No Bleed) – Standard
- F** = Viton on Nomex (No Bleed, No Relief)
- J** = Viton on Nomex (w/Relief, No Bleed)
- M** = Buna "N" (No Bleed, No Relief)

Character 10: Gauge Selections

- X** = No Gauge – standard

Character 11: Filter Bowl Option

- 1** = Standard (Bowl Size)

NOTE: Materials of construction and cleaning specifications are the user's responsibility.

Character 12: Control Ranges

- C** = 25 psig (172 kPa)
- F** = 60 psig (414 kPa)
- G** = 125 psig (862 kPa)

OPERATION IN SERVICE

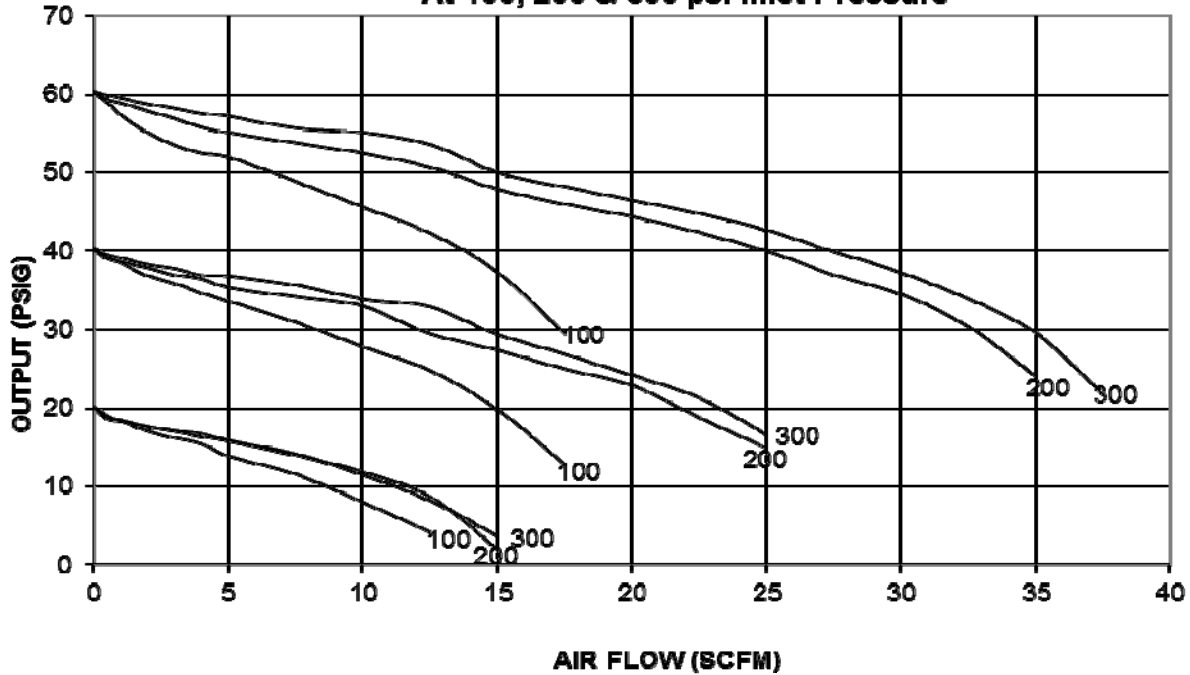
Open upstream controls to provide the regulator supply pressure. To increase the output set pressure, rotate the knob or handwheel clockwise. To decrease the output set pressure, rotate the knob or handwheel counterclockwise. For non-relieving models (option "M" or "F" in character 9 position of the CED code), rotate the knob or handwheel counterclockwise to reduce the output pressure when the system is flowing.

When the system is being shut down, it is an established safety practice to reduce the output pressure under flow then shut off the supply pressure to the regulator. After all pressure is relieved from the system, back out the control knob until there is no spring resistance felt on the control knob. This will assure that no output pressure will be generated when the supply pressure to the regulator resumes, the next time the system is used.

NOTE: The downstream pressure will change as the flow changes. As the flow increases, the delivery pressure will decrease.

NOTE: The outlet set pressure will change as the inlet pressure changes. The output set pressure will increase as the supply pressure decreases at an approximate rate of 0.3 psi per 25 psi decrease in the inlet pressure.

**GFH45 0-60 PSI Regulator
At 100, 200 & 300 psi Inlet Pressure**



TROUBLESHOOTING GUIDE

Symptom: Outlet pressure continues to rise after flow ceases.

Potential Cause: Valve seat leakage

Repair: Disassemble and clean regulator components. Install new valve plug and filter element (if applicable). Reassemble.

Symptom: External leakage

Potential Cause: Diaphragm to body joint seal leakage.

Repair: Disassemble. Inspect regulator body where diaphragm seals. Replace diaphragm assembly.

Potential Cause: Bowl to body joint leakage.

Repair: Disassemble. Inspect regulator body where bowl o-ring contacts. Inspect bowl where o-ring contacts. Replace o-ring.

Symptom: External leakage

Potential Cause: Draincock leakage.

Repair: Tighten draincock by turning handle clockwise.

Symptom: Outlet pressure cannot be adjusted to maximum control range.

Potential Causes:

1. Control knob positive stop adjustment.
2. Flow induced droop.

Repair:

1. Adjust positive stop of control knob.
2. A higher output range regulator may be required.

Symptom: Noisy operation.

Potential Causes: Turbulence in adjacent piping.

Repair: Insure that there are no elbows, line tees or other turbulence creating piping directly upstream or downstream of the pressure regulator.

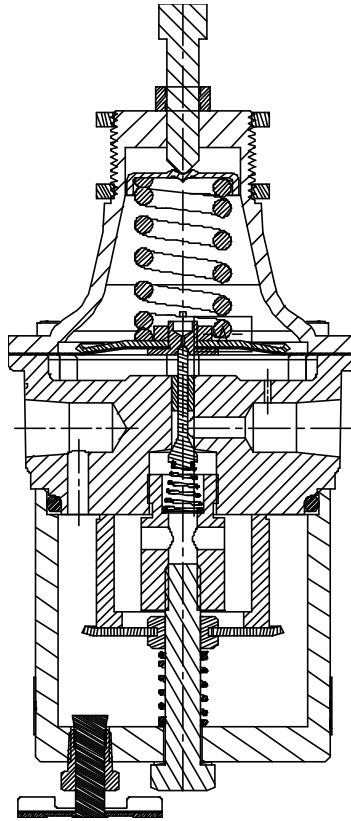


FIGURE 2 – Cross Section of GFH45 Regulator

REPAIR AND MAINTENANCE

WARNING: To prevent equipment damage or injury, insure that all system pressure is relieved and the supply valve for this regulator is secured in the off position.

Cleanliness is critical to successful maintenance and repair of this product. Perform all repair work in a clean environment, with clean tools, and the correct materials and supplies.

Tools and Materials Required:

1. A vise, or other suitable fixture, to secure the regulator.
2. Phillips screwdriver
3. Socket wrenches
4. Torque Wrench
5. Lint free swabs or wipes to clean components

DISASSEMBLY

1. Secure the body of the regulator.
2. Turn control knob counterclockwise until the range spring is unloaded.
3. Remove the six screws holding the bonnet to the body.
4. Remove the bonnet.
5. Remove the spring button and spring.
6. For 125 psi output units, remove the restricting plate (note: the 0-60 psi model is shown in figure 2 and does not have this restricting plate).
7. Remove the diaphragm assembly.
8. Unscrew the bolt and seal washer.
9. Remove the dripwell by pulling downward away from the body.

10. Remove the filter.
11. To remove the plug spring and valve plug, unscrew the retainer, then grip the plug spring and pull downward away from the body. The plug and plug spring should slide out of the body together.

ASSEMBLY

1. Replace worn or damaged components with new components.
2. Clean and inspect components for reuse. Sealing surfaces must be smooth and free of wear or scratches.
3. Install the valve plug and plug spring into the body. Secure with the retainer. Torque retainer to 80 in-lb.
4. Replace the o-ring around the bowl with a new lubricated o-ring.
5. If previously removed, install a new seal washer onto the bolt. Install the filter plate, grommet and spring into the dripwell, on the bolt.
6. Place a new filter in the body.
7. Install the dripwell by firmly pressing it over the o-ring. The dripwell may be rotated to align the draincock to the desired orientation. Secure the dripwell with the bolt, tightened to 80 in-lb.
8. Assemble the diaphragm assembly, the restrictor plate (for 125 psi models only), range spring, spring button and bonnet. Secure bonnet with the six (6) bonnet screws. Tighten snug (32 in-lb).
9. Lubricate (grease) and install the adjustment (wrench knob or handwheel), jam nut and any panel nuts and/or mounting hardware.

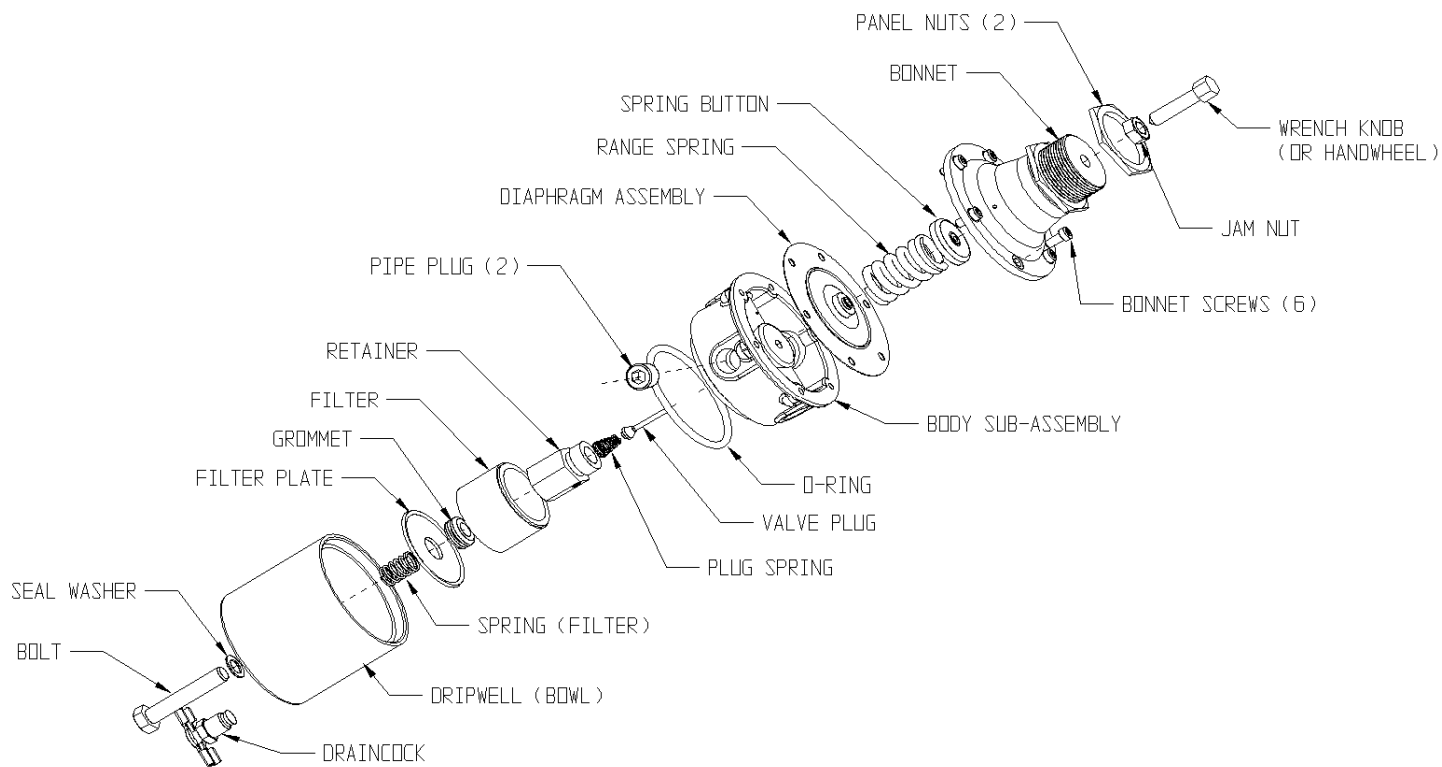


FIGURE – 3 Exploded View of the GFH45

NOTES:

1. When ordering spare parts, specify complete Regulator Model Number., and Item Description. This will permit positive identification and rapid handling of order.
2. Spare parts kit (standard configuration only)
 - a. G6385516 for the 0-25/60 psi (172/414 kPa) models
 - b. G6385517 for the 0-125 psi (862 kPa) model
3. For other model configurations or non-CED codeable models, consult factory for correct part number.