



ITT

Enidine / Conoflow
105 Commerce Way
Westminster, SC 29693
Tel: (864) 647-9521
Fax: (864) 647-9574

Engineered for life

INSTRUCTION AND MAINTENANCE MANUAL **GH21AT/GH41AT Adjustable Differential** **Pressure Regulator**

WARNING: These instructions must be read carefully prior to installation and system startup.

INTRODUCTION

The ITT Conoflow GH21 & GH41 AT adjustable differential pressure regulators are used to provide adjustable output pressure that tracks a fluid pressure signal pressure. Various configurations of this regulator are available, based on the needs of the application.

The GH21AT & GH41AT are available in brass or stainless steel construction.

PRINCIPLE OF OPERATION

The combination of signal pressure and turning the adjustment screw (compression of a range spring) are additive and provide top loading of a diaphragm assembly. This drives the diaphragm downward, opening the valve in the nozzle assembly and allowing the regulated fluid to flow downstream and build pressure. In equilibrium, this signal pressure and spring force is balanced by the force of output pressure acting underneath the regulators diaphragm assembly.

For a given signal pressure, turning the adjustment screw clockwise will increase the output pressure to the specified differential pressure range of the regulator. For example if the regulator is configured with a 0-15 psi differential pressure range (option code B), the output pressure can be adjusted to 15 psi above the signal pressure.

The GH21AT and GH41AT regulators are non-relieving. To decrease the output pressure, there must be flow downstream of the regulator to allow the pressure to bleed down.

WARNING

Conoflow's products are designed and manufactured using materials and workmanship required to meet 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.

The GH21AT is equipped with a metal-to-metal nozzle valve, providing the longest life. The GH41AT is equipped with a soft seat nozzle, providing bubble tight shutoff.

INSTALLATION:

WARNING: The Maximum Inlet (supply) Pressure is 200 psi (1379 kPa) for the standard brass body model or 300 psi (2068 kPa) for the optional stainless steel model.

The regulator has three (3) npt connections. The inlet connection is marked "IN", the outlet is opposite the inlet connection, and the signal port is located on the side of the spring bonnet. ***It is recommended that a filtered supply media is used.***

All connections should be checked for leakage after installation.

SPECIFICATIONS:

Maximum Inlet Pressure (brass): 200 psi (1379 kPa)
(stainless steel): 300 psi (2068 kPa)

Maximum Signal (bonnet) Pressure: 100 psig (690 kPa)

Connections: 1/4" NPT (Inlet / Outlet)
1/8" NPT (Bonnet Signal Pressure)

Temperature Range: -20 °F to 150 °F

Catalog Part Number Breakdown (Control Engineering Data or CED Codes) for the GH21XT Series Regulator

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 and diaphragm selection, it also provides all necessary data, regarding adjustment options and range selections. Control Engineering Data also provides a means of communicating, by way of a code number, which is fully descriptive of the product selection.

NOTE: 1. Catalog numbers as received must contain eight-eleven (8-11) characters.

1-4 Model	GH21 or GH41 = Regulator – Differential
5 Operational Features	A = Standard - Unless Option Code is Specified
6 Bonnet Options	T = Threaded Bonnet - (Standard)
7 Mounting Options	X = Absence of Specification – Standard
8 Diaphragm Selections	B = Silicone Rubber on Glass (No Bleed, No Relief) F = Viton on Nomex (No Bleed, No Relief) K = Teflon – Sandwich type (No Bleed, No Relief) M = Buna “N” (No Bleed, No Relief) N = Nordel no Nomex (No Bleed, No Relief) P = Neoprene (No Bleed, No Relief)
9 Seat Selections	X = Standard metal to metal for GH21AT A = Buna “N” GH41AT B = Neoprene GH41AT C = Viton GH41AT
10 Material Options	K = Stainless Steel Construction (302/303 Stainless Steel Internals) S = Stainless Steel Construction (316 Stainless Steel Internals) X = Standard - Unless option code is specified.
11 Cleaning Options	A = Cleaned for Oxygen Service X = Standard level cleanliness
12 Range	A = 0-5 psid (0-35 kPa) B = 0-15 psid (0-103 kPa) C = 0-25 psid (0-241 kPa) D = 0-35 psid (0-241 kPa) E = 0-50 psid (0-345 kPa) G = 0-125 psid (0-862 kPa)

When servicing the regulator, a complete model number is required to assure correct components.

When replacement parts are required, please contact the factory with the full model number and serial number of the regulator.

MAINTENANCE

CAUTION: Remove air supply pressure and thoroughly vent the inlet and outlet pressure prior to performing maintenance.

Periodic replacement of the diaphragm assembly and nozzle assembly is recommended for services where the unit is on-stream continuously and where consistent, high accuracy regulation is required. The frequency of replacement is dependent on the nature of the application and can be affected by the cleanliness of the media, the temperature and humidity of the environment, the rate of flow, and other factors.

To replace the diaphragm assembly, loosen and remove the fillister head machine screws and lift off bonnet and range spring. Remove the diaphragm assembly. Place the new diaphragm assembly on the bonnet, with the diaphragm plate and staked side face upward (away from the body).

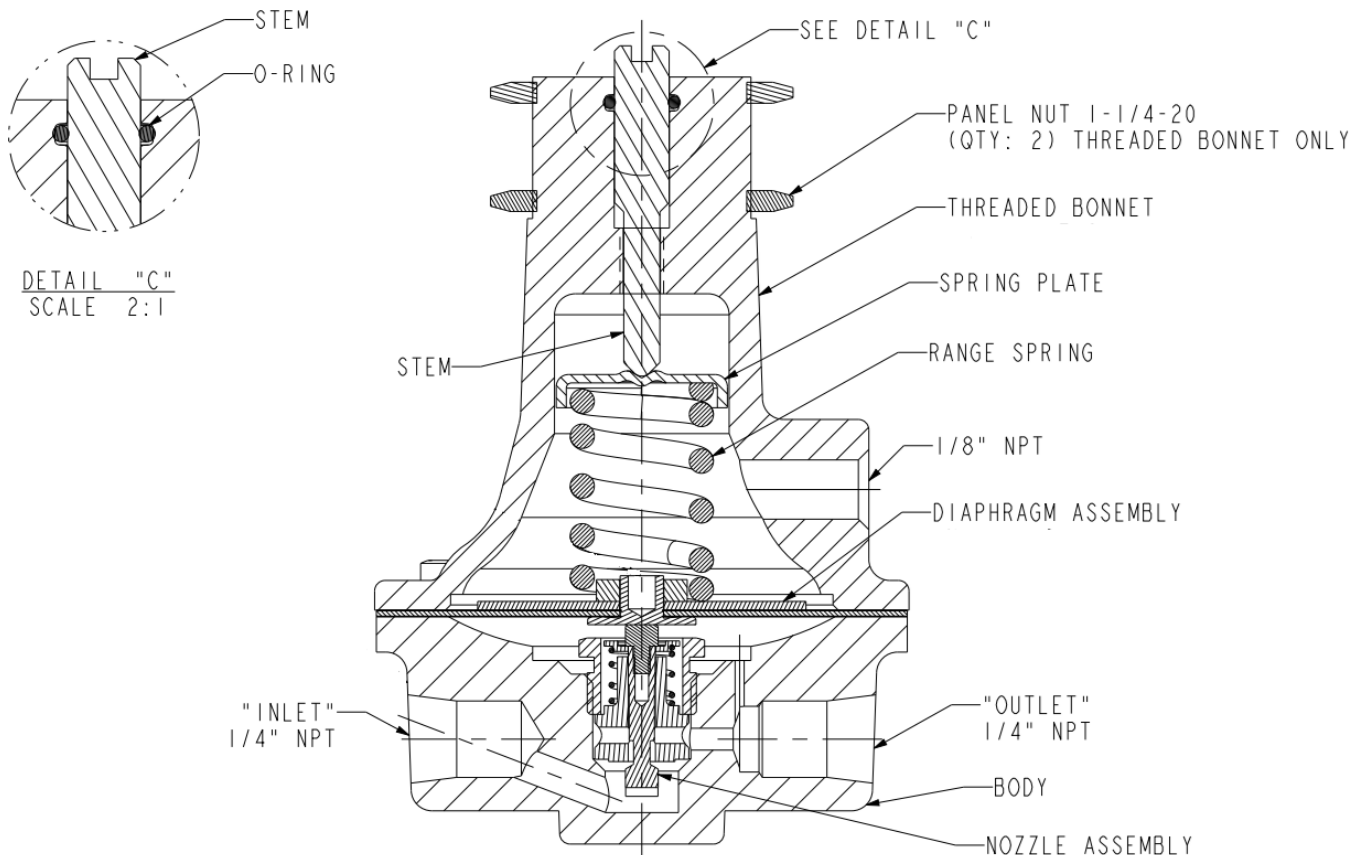
Place the range spring over the diaphragm assembly then secure the bonnet with the fillister head machine screws tightened to 24 in-lb. Torque screws in an alternating pattern to assure even compression of the diaphragm.

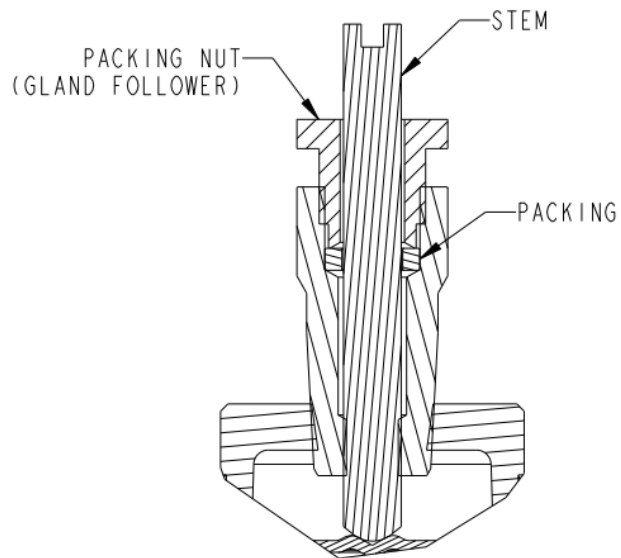
To replace the nozzle assembly, disassemble the regulator as previously described, then remove the baffle plate and the nozzle assembly. Use a 5/8" socket wrench to remove and install the nozzle assembly.

The GH21AT / GH41AT nozzle assembly may be cleaned in a compatible solvent or replaced. When replacing the nozzle assembly, the nozzle is installed with 80 in-lb assembly torque. The GH41AT soft seat nozzle is installed to 30 in-lb.

To replace the o-ring, remove the stem and carefully remove the o-ring with a sharp instrument. Install a new lubricated o-ring in the bonnet groove.

To replace the stem packing (stainless bonnets), remove the stem and packing nut, then replace packing.





Stainless steel model stem packing detail.