

# ITT Industries

AUTOMOTIVE  
DEFENSE & ELECTRONICS  
FLUID TECHNOLOGY

## ITT CONOFLOW

Highway 78 P.O. Box 768  
St. George, South Carolina 29477-0768  
Telephone: (803) 563-9281  
FAX (803) 563-2131

## INSTRUCTION AND MAINTENANCE MANUAL GH24/25 SERIES PRESSURE REDUCING REGULATORS

### WARNING

Conoflow's products are designed and manufactured using materials and workmanship required to meet all applicable industry 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 (i.e. exceeding pressure-temperature rating or using device for services other than those specified).

To avoid personal injury or equipment damage due to 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.

### PRINCIPLE OF OPERATION

#### Refer To Figure 1

Turning the handwheel changes the force exerted by the range spring on the diaphragm assembly. In equilibrium, the force exerted by the range spring is balanced by the force from the output pressure acting underneath the diaphragm assembly.

An unbalance between the output pressure and the set pressure causes a corresponding reaction in the diaphragm and nozzle assemblies. If the output pressure rises above the set pressure, the diaphragm seat is lifted from the plug venting the excess pressure to atmosphere until equilibrium is reached. If the output pressure drops below the set pressure, the unbalanced force from the range spring acts through the diaphragm assembly unseating the nozzle plug. This allows supply pressure to flow through the nozzle to the downstream port increasing the output pressure. The output pressure increases until it balances the force on the diaphragm assembly by the range spring. At equilibrium, the plug assumes a position which supplies the required flow while maintaining the output pressure at the set pressure.

#### Refer To Figure 2

A no bleed/no relief diaphragm assembly is used to prevent the process media from exhausting to atmosphere. This option is typically used with liquids and toxic gases. The principle of operation is the same as above except that excess output pressure is not vented to atmosphere. Instead, as the diaphragm seat lifts off of the plug and the nozzle closes, the excess pressure is relieved downstream.

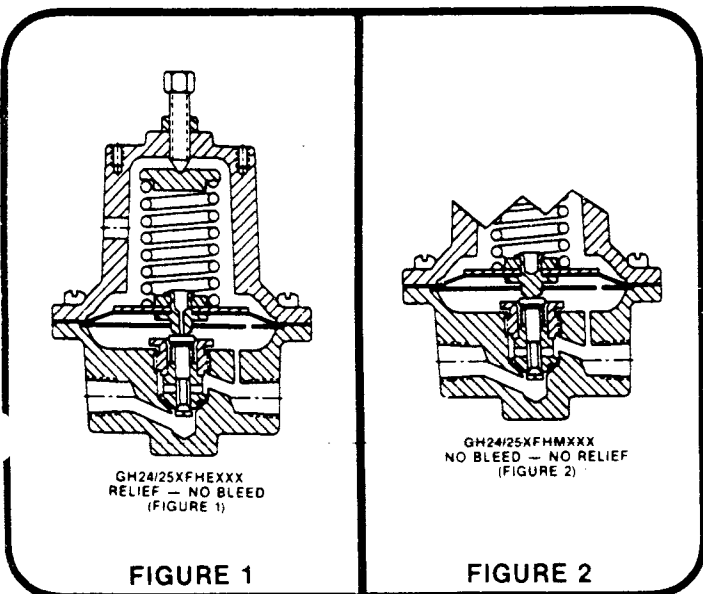
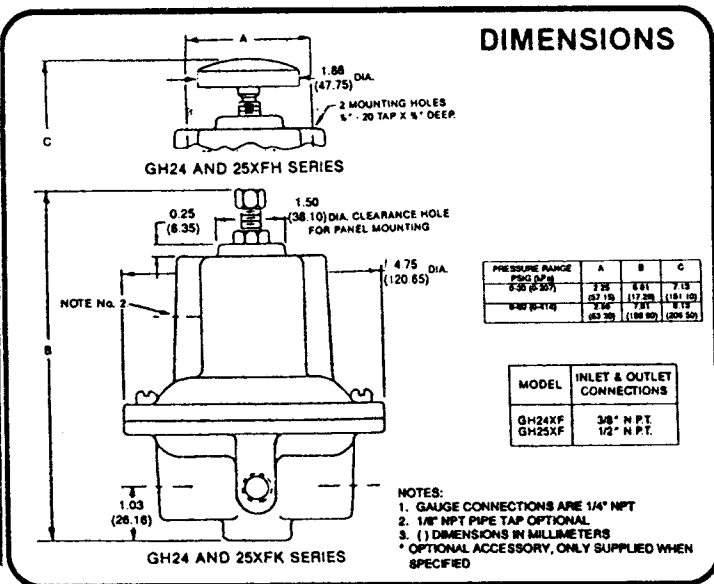


FIGURE 1

FIGURE 2



### INSTALLATION

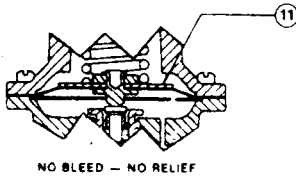
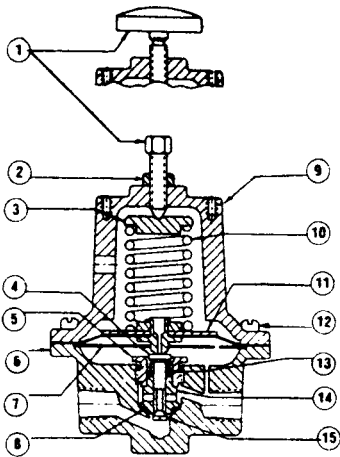
#### CAUTION: Maximum Supply Pressure is 250 PSI(1724 kPa)

The GH24 has 3/8" N.P.T. connections with the GH25 having 1/2" N.P.T. connections. The inlet connection is marked "IN." The third connection located in the center of the body is a gauge connection. (1/4" N.P.T.) IT IS RECOMMENDED THAT A FILTERED AIR SUPPLY BE USED.

Check all connections for leakage after installation.

The adjusting screw should be kept well lubricated with grease.

FOR CERTIFIED DIMENSIONAL DRAWING,  
REFER TO A17-35



## MAINTENANCE

**Remove air supply pressure and bleed off output 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 will depend on the nature of the service, cleanliness of air, humidity of the air, etc.

To replace diaphragm assembly, loosen adjustment (knob or handwheel) until spring tension is relieved. Remove eight screws (12) and lift off bonnet (9), spring plate (3), spring (10) and diaphragm assembly (11). Place new diaphragm assembly (11) over body (6) with diaphragm plate up. Place spring (10) and spring plate (3) on diaphragm assembly (11), re-install bonnet (9) and tighten eight screws (12). The eight screws should be tightened alternately.

**NOTE: The nozzle will be referred to as "N" — This includes items 4, 5, 8, 13, 14 and 15. To replace nozzle assembly (N) proceed as above, also removing baffle plate (7). Use 1" socket wrench to remove and replace nozzle assembly to avoid damage to the nozzle. Nozzle assembly may be cleaned by immersion in a suitable solvent and blowing dry with air stream.**

Item No.	Description	Qty. Req'd	GH24XFHEXXX(2) GH24XFHMXXX(2)	GH25XFHEXXX(2) GH25XFHMXXX(2)
1	Handwheel Assembly	1	6020853	6020853
	Knob-Wrench Style	1	6020614	6020614
2	Hex Jam Nut 3/8"-24 N.F.	1	6900215	6900215
3*	Spring Plate	1	6020622	6020622
4	Top Plug	1	6020754	6020754
5	Nozzle Retaining Nut	1	6020762	6020762
6	Body	1	6020481	6020499
7	Baffle Plate	1	6020747	6020747
8(1)	"O" Ring	1	6076780	6076780
9	Bonnet			
	0-30, 60 PSI(0-207, 414 kPa)	1	6020515	6020515
	0-100 PSI(0-690 kPa)	1	6020531	6020531
10	Range Spring			
	0-30 PSI(0-207 kPa)	1	6020572	6020572
	0-60 PSI(0-414 kPa)	1	6020598	6020598
	0-100 PSI(0-690 kPa)	1	6020606	6020606
11(1)	Diaphragm Assembly			
	HEXXX_	1	6020564	6020564
	HMXXX_	1	6020846	6020846
12	Fill Hd. Screw 1/4"-20 N.C. x 1/2" Lg.	8	6900089	6900089
13	Plug Spring	1	6017289	6017289
14	Nozzle	1	6020788	6020788
15	Bottom Plug	1	6020770	6020770

\* 0-100 PSI(0-690 kPa) Range uses 6384434.

NOTES: 1. Recommended Spare Parts can be purchased individually or as spare parts kit under numbers:

HEXXX 6385349 Spare parts Kit GH24/25

HMXXX 6385350 Spare parts kit GH24/25

Consists of Items 8 and 11.

2. For definition of catalog number, refer to Sales Bulletin C-2004.

3. When ordering spare parts, specify complete catalog no., item no. and part no. This will permit positive identification and rapid handling of order.

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**WARNING: MANUFACTURED WITH (1, 1, 1-TRICHLOROETHANE), A SUBSTANCE WHICH HARMS PUBLIC HEALTH AND ENVIRONMENT BY DESTROYING OZONE IN THE UPPER ATMOSPHERE.**

WARNING - TECHNICAL DATA SUBJECT TO EAR CONTROLS

This document contains technical data whose export is restricted by the Export Administration Act of 1979, as amended (Title 50, U.S.C., App. 2401, et seq.) Violation of this export control law is subject to severe criminal penalties.