

PROPORTION AIR

PSR INSTALLATION AND MAINTENANCE GUIDE

WARNING

These products are intended for use in industrial compressed inert gas systems only. Do not use these products where pressures and temperatures can exceed those listed under Specifications.

OPERATION

Refer to figure 1 for ports location. With pressure supplied to the volume booster supply port and no pilot signal, valve (B) is closed. Pressurizing the pilot port applies a load to diaphragm (A). This load causes diaphragm (A), valve stem (C), and valve (B) to move downward allowing flow across the seat area between valve (B) and the body. Pressure in the output line is sensed below diaphragm (A), via the sense port (D), and offsets the load on diaphragm (A). As output pressure rises, valve (B), valve stem (C), and diaphragm (A) move upward until the area is closed causing the pilot pressure load on diaphragm (A) and pressure under diaphragm (A) to be in balance. A reduced output pressure has now been obtained.

Creating a demand downstream results in a reduced pressure under diaphragm (A). The load on diaphragm (A) now causes the valve stem (C), and valve (B) to move downward opening seat area and allowing air to flow to the output. The flow of output air is metered by the amount of opening. During low flow requirements, the amount of opening at the seat is small, while at high flows it is large. The output pressure signal requires correction over the flow range, in order to give a constant pressure output when under flow conditions. This adjustment is caused by sense port (D) which is located in such a manner as to provide compensation to the output pressure signal transmitted to diaphragm (A). This effect is called aspiration. The purpose is to maintain output pressure nearly constant over a wide range of flow demands.

Should downstream pressure exceed the desired regulated pressure, the excess pressure will cause diaphragm (A) to move upward, opening the vent hole sealed between diaphragm (A) and valve stem (C), venting the excess pressure to atmosphere through the relief stem (E) and out the relief port on the dome (F).

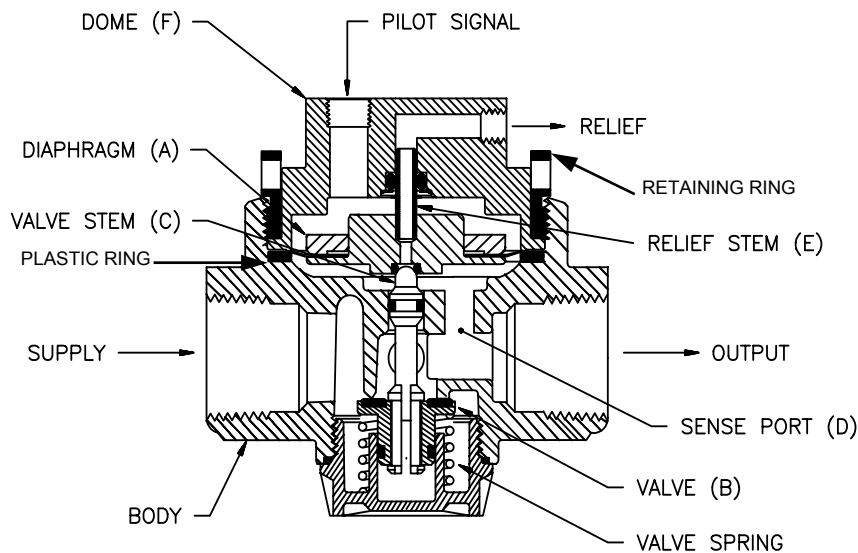


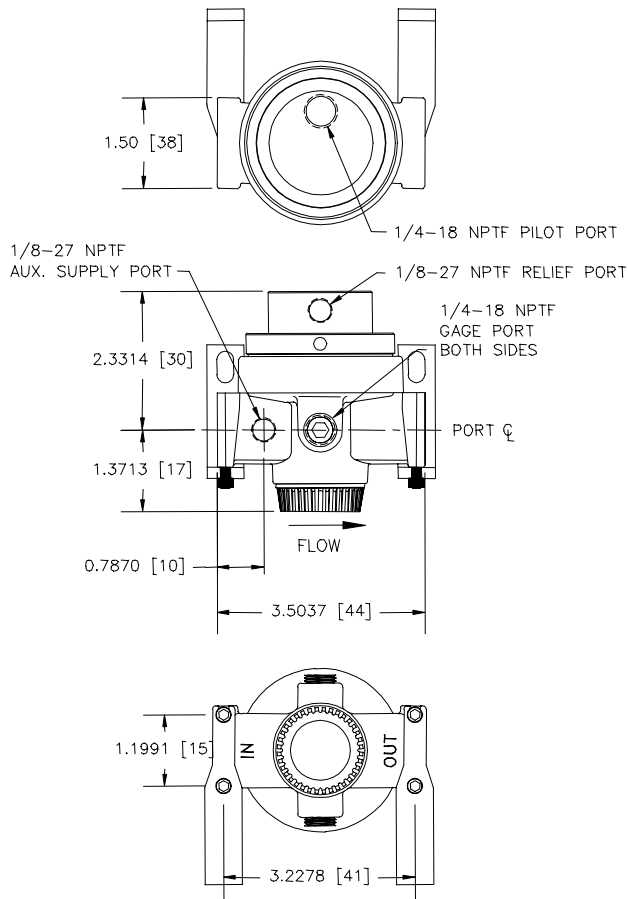
Figure 1

PRE-LOAD PROCEDURE

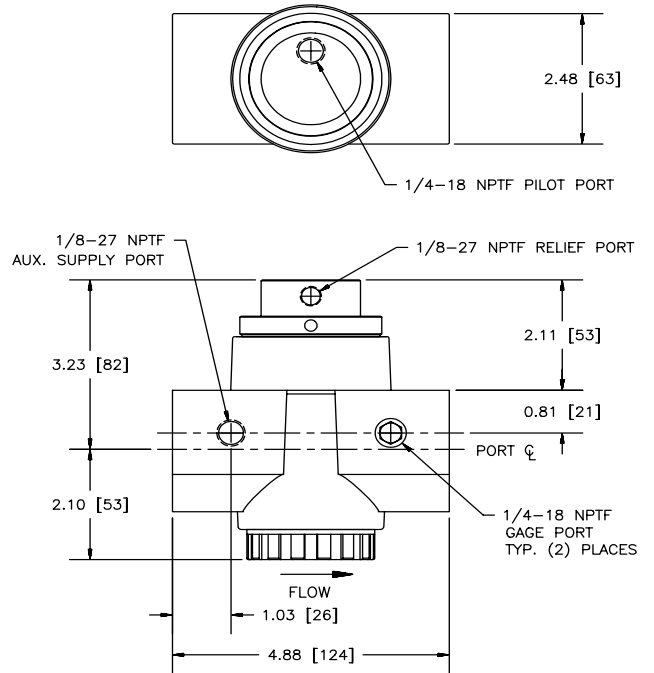
Follow this procedure for maintenance or repair. Remove retaining ring using span-wrench. Check and make sure there is grease on the diaphragm's relief stem (E). Place diaphragm (A) in the PSR body. Make sure diaphragm (A) is not pinched and is seated flat on the plastic ring inside the PSR body. Place dome (F) on the diaphragm (A). Place retaining ring on the body and hand turn it, leaving it one turn loose. Apply 5-10 psig of air to the pilot air signal port (you may hear a slight "pop" sound). Tighten the retaining ring using a span-wrench then remove pilot air pressure.

DIMENSIONS

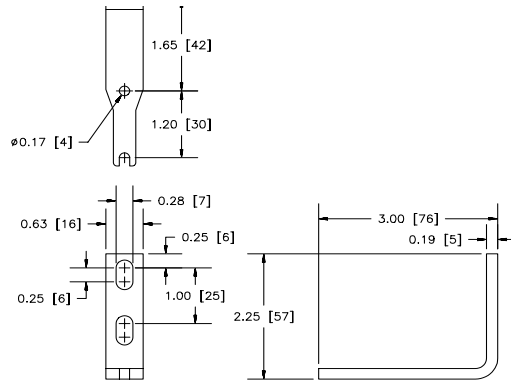
PSR-2,-3,-4



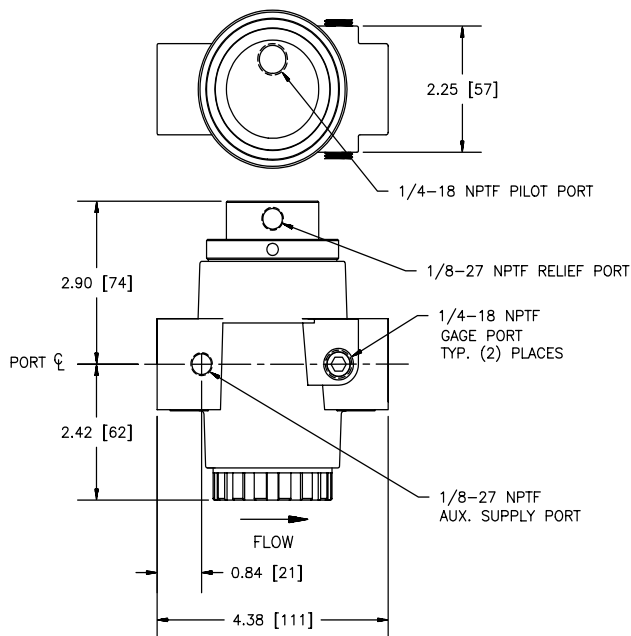
PSR-6,-8



Bracket for PSR-2,-3,-4



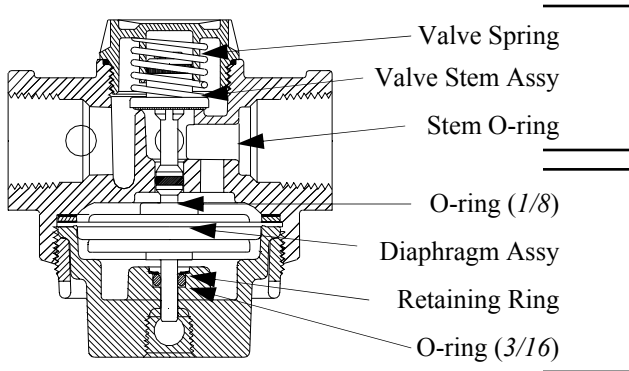
PSR-A,-B



Bracket for PSR-6,-8,-A,-B

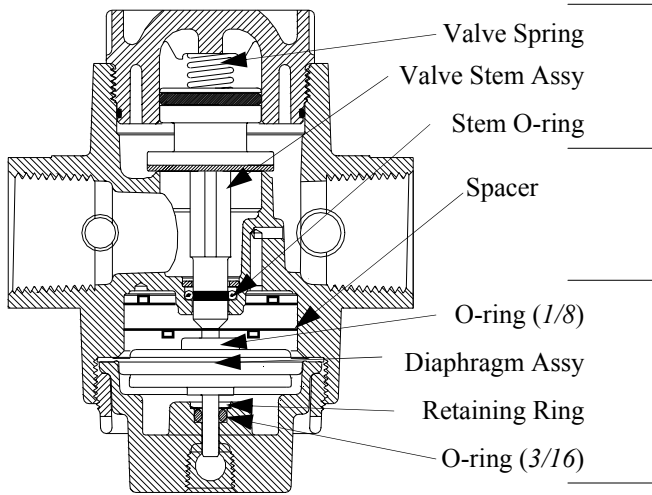
PSR Replacement Kit

PSR-2, PSR-2U, PSR-3, PSR-3U, PSR-4, PSR-4U



MISCELLANEOUS KITS / PARTS		
KEY	DESCRIPTION	PART NUMBER
1	Valve Ass'y kit	HA35-10BR
2	Diaphragm Ass'y kit	HA37-237RM

PSR-6, PSR-6U, PSR-8, PSR-8U



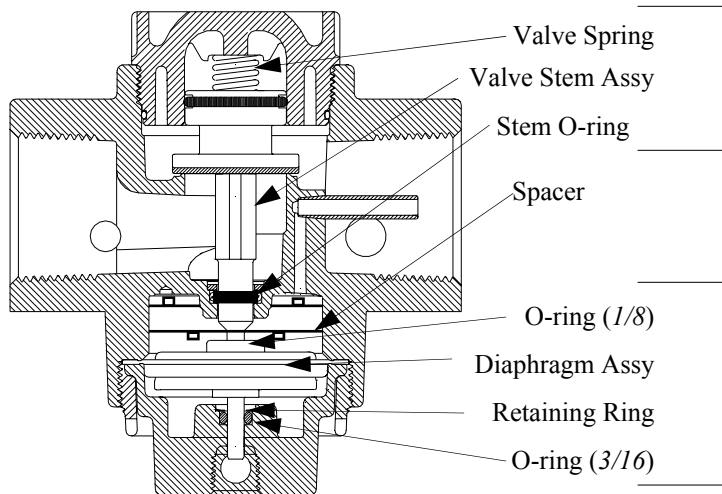
ATTENTION:

The spacer must be installed with the diaphragm assembly if it is not currently there. Once the spacer is installed, it does not need to be replaced.

- Installation instruction for spacer in the diaphragm assembly kit:
1. Orient the spacer so stand-off do not block hole drilled in bottom of head.
 2. Press spacer into head.

MISCELLANEOUS KITS / PARTS		
KEY	DESCRIPTION	PART NUMBER
1	Valve Ass'y kit	HA37-198BM
2	Diaphragm Ass'y kit	HA37-237R

PSR-A, PSR-AU, PSR-B, PSR-BU



ATTENTION:

The spacer must be installed with the diaphragm assembly if it is not currently there. Once the spacer is installed, it does not need to be replaced.

- Installation instruction for spacer in the diaphragm assembly kit:
1. Orient the spacer so stand-off do not block hole drilled in bottom of head.
 2. Press spacer into head.

MISCELLANEOUS KITS / PARTS		
KEY	DESCRIPTION	PART NUMBER
1	Valve Ass'y kit	HA37-198BM
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