CONOFLOW GJ SERIES POSITIONER

GJ11 and GJ14

The Conoflow Model GJ Positioner is a top mounted, integral type unit used with piston, springless diaphragm or spring and diaphragm actuators. Operating on a force balance principle, this unit's two-stage pilot affords fast response and excellent positioning accuracy. In the two-stage design, a high capacity [5 SCFM (0.14 m3/min)] pilot valve rapidly exhausts or feeds supply pressure to the actuator chamber, producing fast response to instrument air signal changes. Small changes in instrument signal are quickly amplified by the relay providing fast, stable and accurate positioning of the actuator stem.

The Model GJ Positioner is available in either top or bottom loading, direct or reverse acting. Refer to chart below for details:

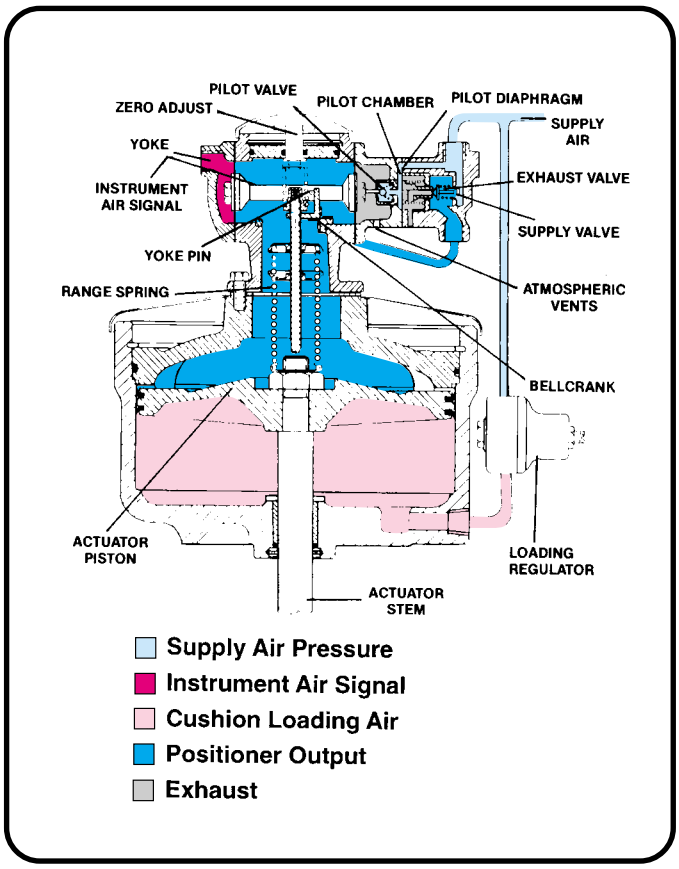
OPERATIONAL CHARACTERISTICS		GJ1103	GJ1215 GJ1230	GJ1315 GJ1330	GJ1403
As Instrument Signal Increases	Positioner Output	Increases	Decreases	Increases	Decreases
	Actuator Stem Moves	Out	In	In	Out
Positioner Output Loading To Actuator		Top	Top	Bottom	Bottom
On Air Failure (With Airlock) Actuator Stem Moves		Retracts	Retracts	Extends	Extends

This positioner can be used with actuator strokes of 1/4" to 10" (Other stroke lengths are available, consult the factory) and instrument spans of 6 to 24 PSI (41 to 166 kPa).

The rugged design affords reliable set-and-forget performance.

DIMENSIONAL DATA - ADVERTISING DRAWINGS:

Fail Safe Schematic: A50-4
Dimensional Data: A50-7



PRINCIPLE OF OPERATION

Illustration at left shows a Model GJ positioner (Type GJ1103, direct acting, top loading) mounted on a cylinder actuator. The cylinder stem is moved by a differential pressure across the piston. A constant pressure from a reducing-relief type cushion-loading regulator forces the piston upward. The chamber above the piston is dynamically loaded through the Model GJ positioner which operates on the force-balance principle. Stem position feedback is accomplished by a tension-type range spring attached to the top of the actuator stem.

An increase in instrument air pressure moves the yoke to the right causing the ball in the pilot nozzle assembly to restrict the pilot chamber opening. This allows pressure to build up in the pilot chamber moving the pilot diaphragm to the right, closing the exhaust valve and opening the supply valve. Air flows through the supply valve into the chamber above the piston and moves it downward. This extends the range spring causing the bell crank to pivot counterclockwise, exerting force against the yoke pin restoring the yoke to a normal balanced position.

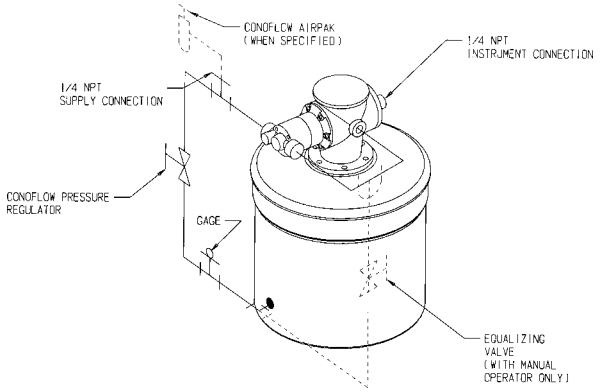
A decrease in instrument air pressure reverses the above procedure, closing the supply valve and opening the exhaust valve, venting to atmosphere the excess air pressure above the actuator piston.

SPECIFICATIONS

Sensitivity: Responds to signal changes as low as .05 PSI (0.35 kPa)
Supply Pressure Effect: Less than 0.15% per PSI
Linearity: Less than 1% of full stroke
Reproducibility: 0.2% of full stroke
Power Amplification: Less than 2.0% deviation in signal or stroke produces full output pressure change
Ambient Temperature Range: -20°F to +150°F (-29°C to +66°C)
Flow Capacity (Dynamic): Up to 5.0 SCFM in either direction with a 100 PSI (690 kPa) supply
Air Consumption (Static): 0.2 SCFM at 40 PSI supply
(0.006 m^3/min at 275.8 kPa)
Air Supply: 20 PSI to 100 PSI (138 to 690 kPa)
Zero Suppression: 2 to 20 PSI (14 to 138 kPa)
Control Actions: Direct or reverse, top or bottom loading
Actuator Travels: 1/4" to 10"
Connections: 1/4" NPT
Adjustment: Zero adjust is external and can be made without tools.
Mounting: Mounted integrally to top of cylinder, springless diaphragm, or spring and diaphragm actuator with 2-1/4" dimension between positioner mounting flange and actuator stem in retracted position.
Weight: Approximate Shipping Weight: 3 lbs. (1.36 Kg)
NOTE: Specifications are typical values based on the use of a Conoflow GB50 Series Actuator. Use of other actuators may affect performance.

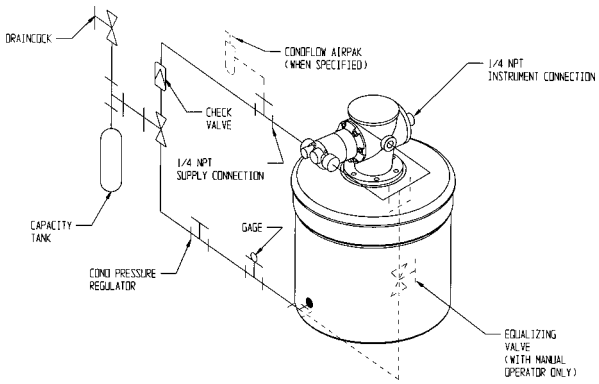
GJ11 & GJ12 TOP LOADING

1



CUSHION LOADING TYPE

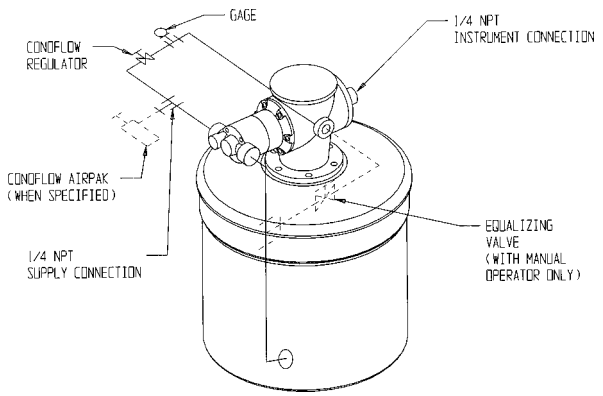
2



CUSHION LOADING TYPE WITH AIRLOCK

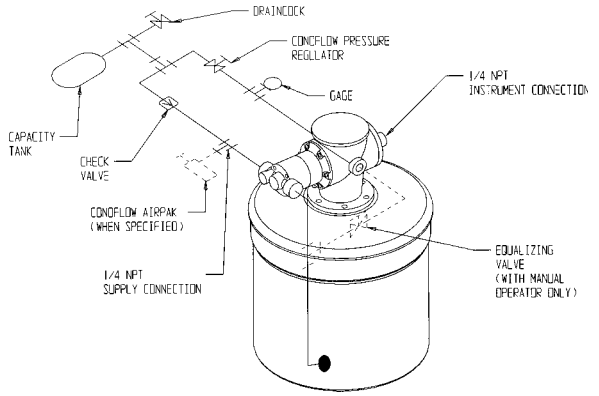
GJ13 & GJ14 BOTTOM LOADING

3



CUSHION LOADING TYPE

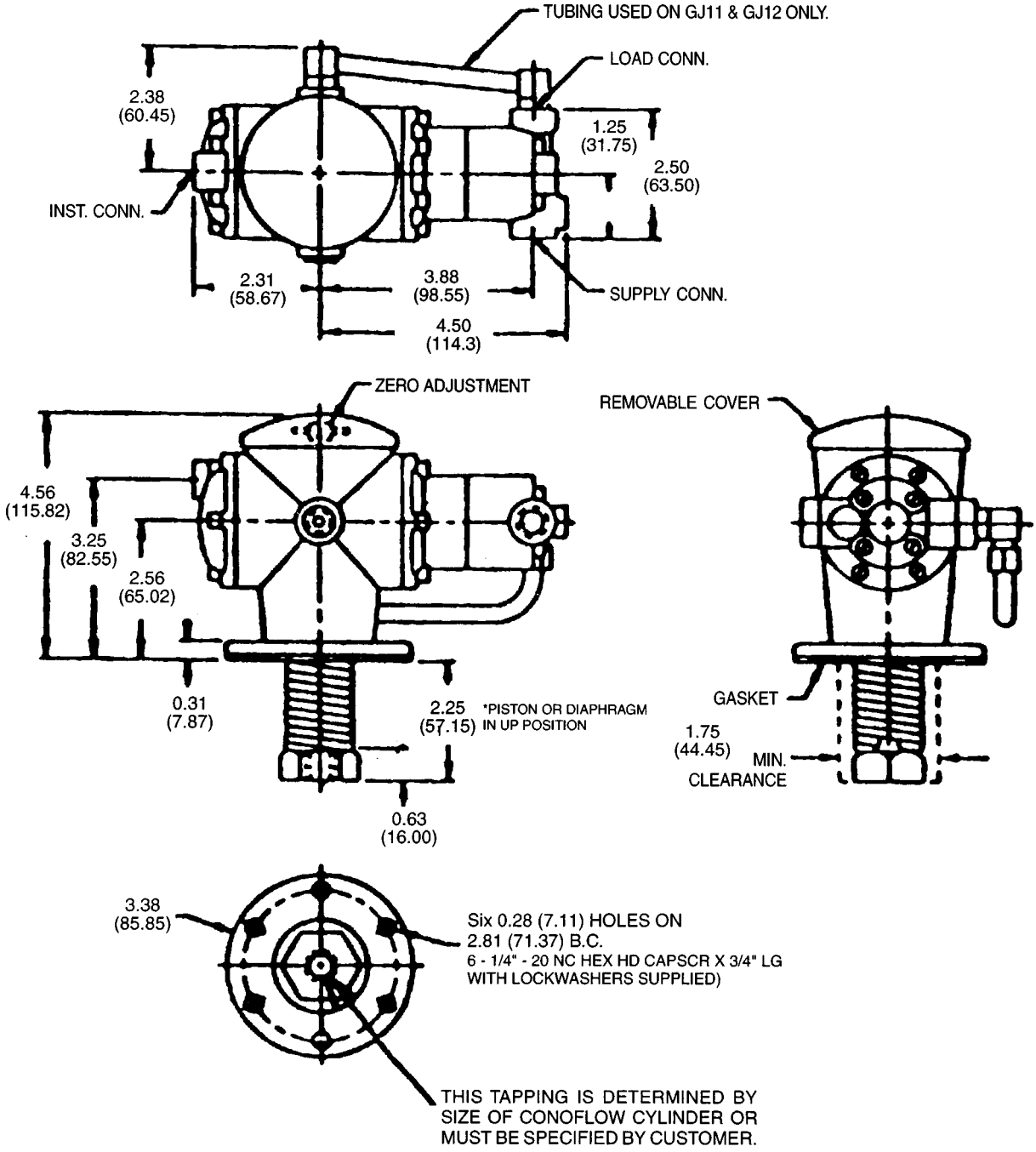
4



CUSHION LOADING TYPE WITH AIRLOCK

MODEL		GJ1103	GJ1215 GJ1230	GJ1315 GJ1330	GJ1403
As Instrument Signal Increases	Positioner Output	Increases	Decreases	Increases	Decreases
	Actuator Stem Moves	Out	In	In	Out
Positioner Output Loading To Actuator		Top	Top	Bottom	Bottom
On Air Failure (With Airlock) Actuator Stem Moves		In	In	Out	Out
Letter Designation in Actuator Model No.		R	S	T	U

For Certified Dimensional Data, refer to Drawing A50-7



( ) DIMENSIONS IN MILLIMETERS
NOTE: ALL CONNECTIONS ARE 1/4 NPT.