



# Installation, Operation and Maintenance Instructions

## TYPE 7150 Precision Air Relay

The Type 7150 is a high precision, multi-stage pressure relay offering fine adjustment and maximum stability under variable operating conditions. The Type 7150 combines the proven and reliable technology of the ControlAir Type 200 Precision Air Relay with the high forward and reverse flow of the Type 6100, 1:1 Relay Volume Booster. A highly sensitive capsule controls the pilot pressure which offers crisp and accurate adjustment.

### 1. SPECIFICATIONS

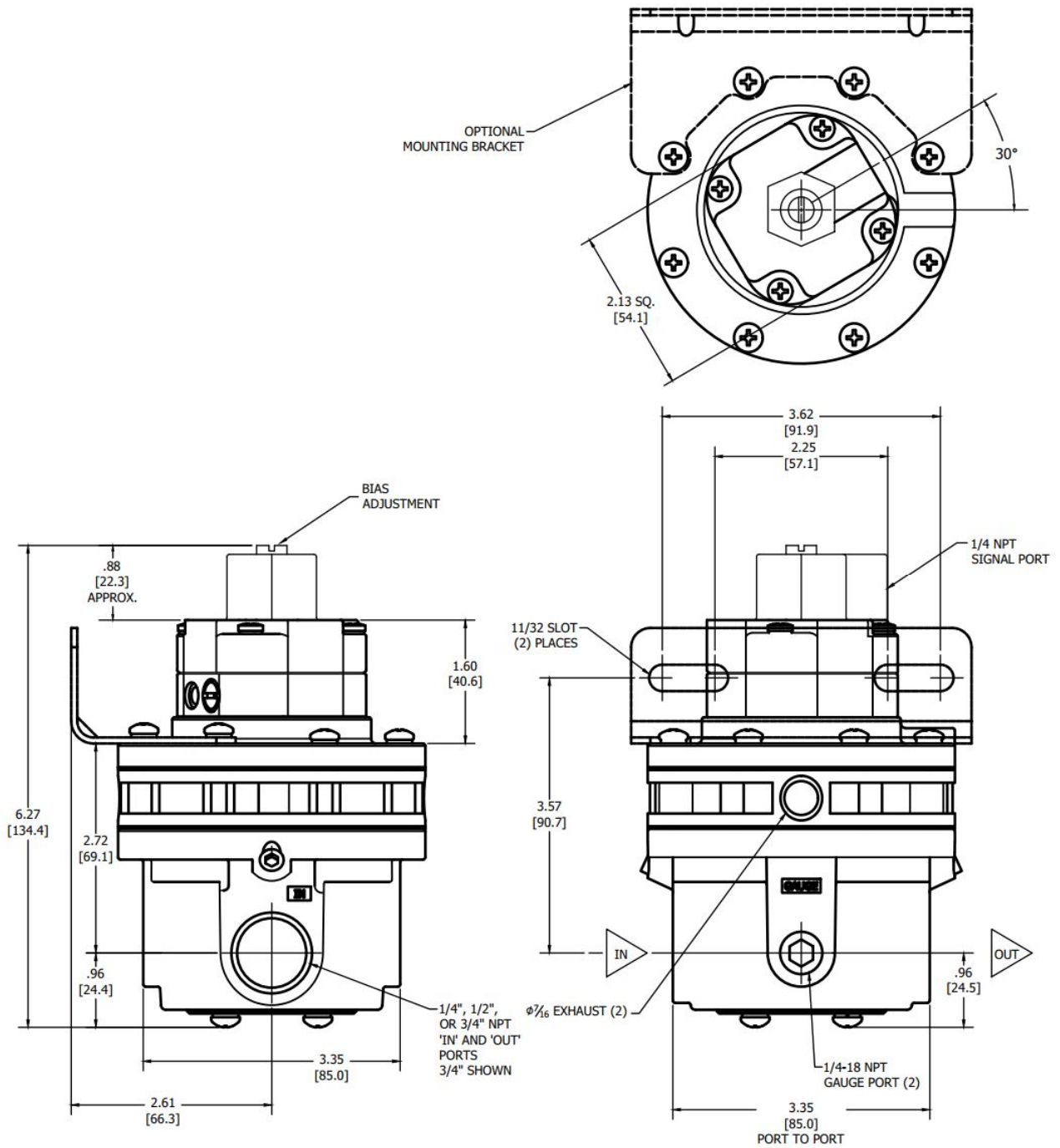
#### Functional Specifications

<b>Supply Pressure</b>	250 psig (17.0 BAR) maximum		
<b>Signal Pressure</b>	120 psig (8 BAR) maximum		
<b>Air Consumption</b>	14 scfh (6.6 NL/min) maximum		
<b>Maximum Flow Coefficients (Cv)</b>	<b>Port</b>	<b>Forward</b>	<b>Exhaust</b>
	3/4"	5.0	3.5
	1/2"	4.5	3.5
	1/4"	2.0	2.5
<b>Exhaust Capacity</b> 5 psig (0.35 bar) above 20 psig (1.38 bar) setpoint	3/4"	80 scfm (2,264 NL/min)	
	1/2"	75 scfm (2,123 NL/min)	
	1/4"	35 scfm (991 NL/min)	
<b>Bleed Rate</b>	Less than 0.08 scfm (2.3 NL/min)		
<b>Sensitivity</b>	Less than 1/4-inch water (6.3 mm)		
<b>Bias Range</b>	-30 psig (-2 BAR) to +100 psig (6.7 BAR) max. output 120 psig (8 BAR)		
<b>Supply Pressure Effect</b>	0.05 psig (3.4m BAR) for a 100 psig (6.9 BAR) change		
<b>Mounting</b>	Pipe, panel or bracket		
<b>Temperature Limits</b>	-20 to 160° F (-29 to 71° C)		

#### Physical Specifications

<b>MATERIALS</b>	
<b>Housing:</b>	Aluminum Alloy and Zinc Alloy
<b>Bolting:</b>	Zinc Plated Steel
<b>Other trim:</b>	Aluminum
<b>Internal Components:</b>	Stainless Steel, Plated Steel, Brass, Aluminum
<b>Elastomers:</b>	Nitrile
<b>Bias Screw:</b>	Stainless Steel
<b>Weight</b>	2.5 lbs (1.13 kg)
<b>Supply / Output Ports</b>	1/4", 1/2", or 3/4" NPT
<b>Signal Port</b>	1/4" NPT
<b>Exhaust Ports (2)</b>	Ø 7/16" or 1/4" NPT option
<b>Gauge Ports (2)</b>	1/4" NPT

## 2. DIMENSIONAL DRAWING



(Drawing downloads available at <http://www.controlair.com>)

## 3. INSTALLATION



**WARNING:** Only qualified personnel should install or service a regulator. Regulators should be installed, operated, and maintained in accordance with international and applicable codes and regulations, and ControlAir instructions. If the regulator vents fluid or a leak develops in the system, it indicates that service is required. Failure to take the regulator out of service immediately may create a hazardous condition. Personal injury, equipment damage, or leakage due to escaping fluid or bursting of pressure-containing parts may result if this regulator is over pressured or is installed where service conditions could exceed the limits given in the Specifications section, or where conditions exceed any rating of the adjacent piping or piping connections. To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices (as required by the appropriate code, regulation, or standard) to prevent service conditions from exceeding limits. Additionally, physical damage to the regulator could result in personal injury and property damage due to escaping fluid. To avoid such injury and damage, install the regulator in a safe location.

### 3.1 Pre-Installation Requirements

- 3.1.1 The Type 7150 requires a source of clean, oil-free dry instrument grade air filtered to 40 microns.
- 3.1.2 Air should be free of all contaminants and hazardous gases, flammable or toxic.
- 3.1.3 Clean all pipelines of dirt and scale prior to installation.

**NOTE**

*Failures attributable to instrument air supply contamination are not covered by the warranty.*

**CAUTION**

*This instrument vents to atmosphere. The use of supply gas other than air can create a hazardous environment.*

- 3.1.4 Apply a minimum amount of pipe compound to the male threads of the fitting only. Do not use thread sealant tape on pipe fittings as it tends to contaminate the valve causing the relay to malfunction.

### 3.2 Installation

- 3.2.1 Install the relay so that direction of flow is from Inlet to Outlet as labeled "IN" and "OUT" marked on the body. Inlet and outlet porting are 1/4", 1/2" or 3/4" NPT. Tighten all connections securely.
- 3.2.2 Relay can be mounted in any position and is typically pipe-mounted between the pneumatic supply source and the downstream system.

**NOTE**

*Avoid undersized fittings that will limit flow through the relay and cause pressure drop downstream.*

**NOTE**

*The use of a filter regulator to remove dirt and liquid in the air line ahead of the regulator is recommended for best performance.*

**NOTE**

*If an air lubricator is used, it should be located downstream beyond the relay in order to avoid interference with the relay performance.*

- 3.2.3 Ensure that piping to and from the relay is of proper size to meet the capacity demands of the system.

## 4. OPERATION

**4.1** The Type 7150 is a high forward and relief flow capacity relay that provides a uniform output pressure independent of supply pressure variations. Before putting the relay into service for the first time, adjust output setting to a minimum by turning the bias screw counterclockwise. Note that the minimum output setting will be approximately 1.5 psig. To adjust the bias pressure, turn the pressure bias screw slowly in a clockwise direction until desired downstream pressure is obtained. Turned in this direction, the relay will increase output pressure at the approximate rate of 7 psi for each 1/4 turn of the screw. An application of a signal pressure will be additive to the previously set bias pressure, therefore it is critical that the sum of the bias and the signal pressure does not exceed 120 psi. With a signal pressure applied, the bias screw can be rotated counter-clockwise to act as a negative bias.

## 5. MAINTENANCE AND REPAIRS

### NOTE

*Under normal circumstances, no maintenance should be required.*

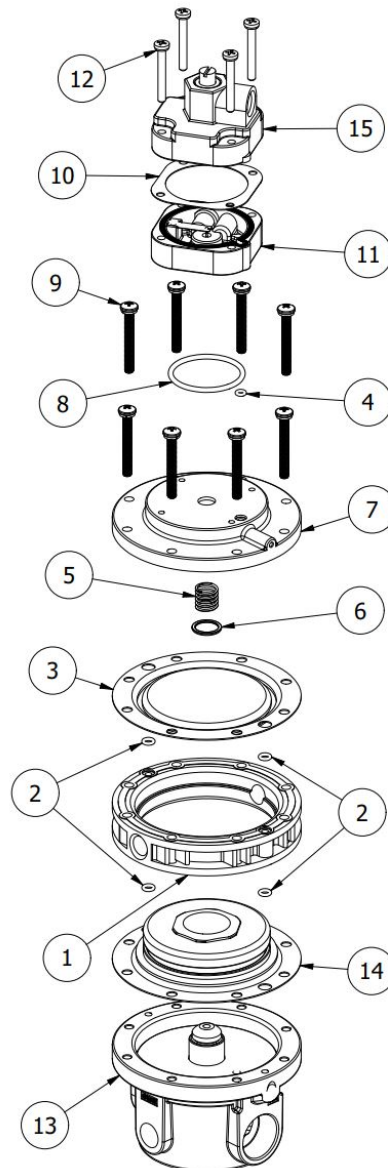
### 5.1 Repairs

- 5.1.1 In the event of unit failure, the Type 7150 can be returned to the factory through point of purchase for warranty repair if the warranty period has not expired.
- 5.1.2 All units returned for repair must be authorized prior to receipt at the factory. Contact a representative at the point of purchase to receive a Return Authorization Number
- 5.1.3 Repair kit for the Type 7150 is available.

Repair Kit P/N: 449-871-174

T-7150 PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	SPACER
2*	4	O-RING, SEAL
3*	1	SIGNAL DIAPHRAGM
4*	1	O-RING 2-005
5	8	STARTUP SPRING
6	1	SPRING GUIDE
7	1	BONNET ASSEMBLY
8*	1	O-RING -127
9	8	10-32 SCREWS & WASHERS
10*	1	GASKET
11	1	HOUSING ASSEMBLY
12	4	BUILD SCREWS & WASHERS
13	1	BODY ASSEMBLY
14*	1	DIAPHRAGM ASSEMBLY
15	1	BONNET/CAPSULE ASSEMBLY

Repair Kit includes: \* Items



## 6. WARRANTY & DISCLAIMER

ControlAir LLC products are warranted to be free from defects in materials and workmanship for a period of eighteen months from the date of sale, provided said products are used according to ControlAir LLC recommended usages. ControlAir LLC liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir LLC's sole option, of any products proved defective. ControlAir LLC reserves the right to discontinue manufacture of any products or change products materials, designs or specifications without notice. Note: ControlAir does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for the proper selection, use, and maintenance of any ControlAir product remains solely with the purchaser and end user.

### WARNING

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