

P.M.C. ADJUSTABLE RATIO RELAYS

The PMC Adjustable ratio relay is a pneumatic instrument which operates on a force balance principle. It is specifically designed to accept pneumatic signals within the range of 0 to 25 inches water to 0 to 100 psig and convert these inputs into standard, 3 to 15 psig/.2 to 1.0 bar, pneumatic control ranges. Special ranges covering 0-10 inches water and 0-150 psig are available on request.

OPERATION

A pressure acting on the load head produces a force proportional to the area of the loading diaphragm. A moment, force x distance, results. The magnitude of this moment is dependant upon the position of the fulcrum. The output pressure, acting on the relay head diaphragm, generates a moment equal to the moment produced by the input pressure. When the instrument is in a balanced position, the relay head's supply and exhaust valves are closed. An increase in the

loading pressure causes the beam to pivot about the fulcrum, opening the supply valve and increasing the output pressure until balance is achieved. A decrease in the loading pressure causes the beam to pivot about the fulcrum, opening the exhaust valve and decreasing the output pressure until balance is achieved.

The output bias spring is adjusted to produce the desired output, usually 3 psig or .2 bar for 0 input.

CROSS SECTION VIEW

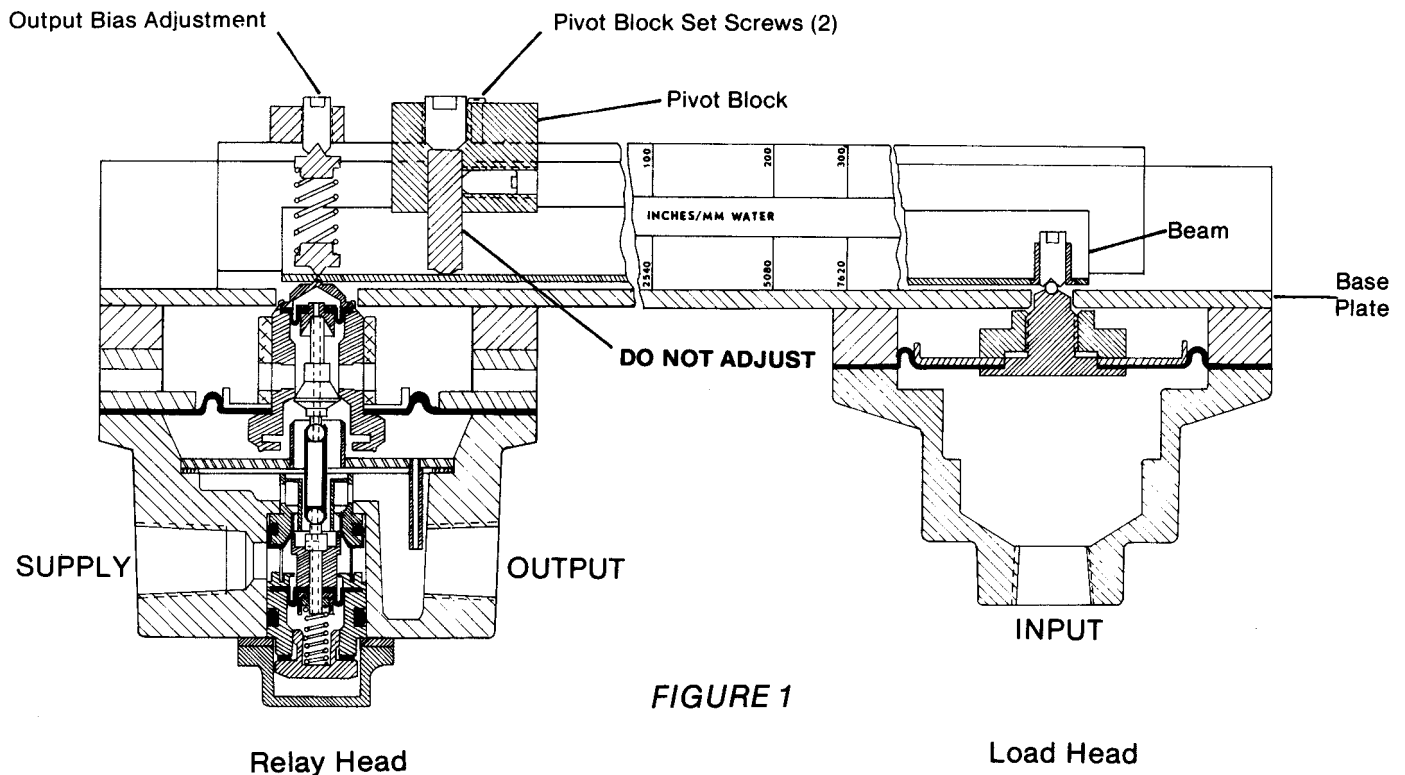


FIGURE 1

MOUNTING

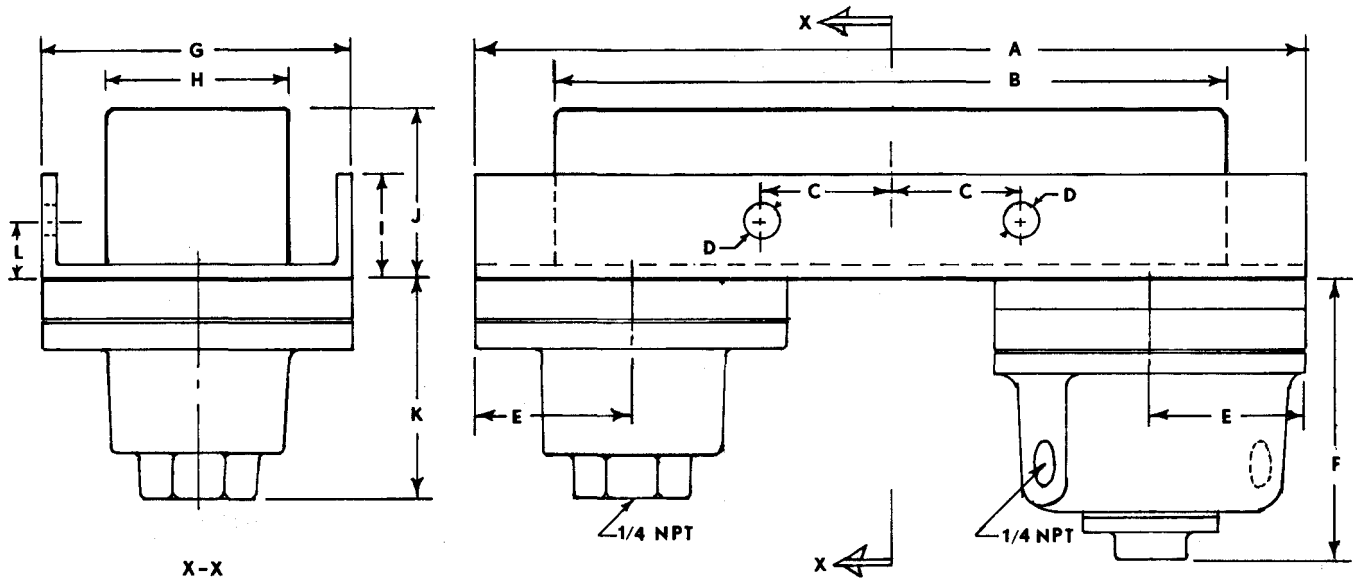
The relay should be mounted in a horizontal position. Avoid mounting on members that vibrate excessively. Two 5/16 in. diameter (8mm) holes are provided on a side flange. Allow 2 in. top clearance for removal of the cover.

PIPING

Load, Output, and Supply connections are 1/4 in NPT. All connections must be free of leaks.

AIR SUPPLY

The air supply should be regulated, clean and dry. Instruments are factory calibrated with 20 psig (1.4 bar) supply. Higher regulated supply pressures may be used, however slight recalibration may be required.



CALIBRATION:GENERAL

Each instrument has been factory calibrated prior to shipment. The input and output ranges are indicated on the instrument. Initial field calibration is neither necessary nor recommended. **Do not adjust pivot height. See Figure 1.**

Test equipment must be compatible with the calibration accuracy required.

CALIBRATION PROCEDURE

1. Apply supply pressure, (20 psig/1.4 bar), to IN port and connect test gage to OUT port.
2. Loosen the two pivot block set screws.
3. Move the pivot block to desired range on scale. *This adjustment must be made with no input load.*
4. Tighten the two pivot block set screws.
5. Adjust the output bias spring to obtain the desired output pressure, usually 3 psig or 0.2 bar.
6. Apply input pressure to LOAD port and check the output at 50% and 100% input. If necessary, adjust the pivot block repeating steps 2,3,4, and 5 to obtain accurate output. Moving the pivot block closer to the relay head increases the output.

TROUBLE SHOOTING:

(a) Balance beam out of place

This could result from heavy impact during shipment or installation. The beam should be centered in the rail system and is easily positioned over the pivots with the cover removed.

(b) Relay head malfunction

Make sure air connections are correct. Connect air supply to IN and output signal line to OUT. The relay head is the most critical part of the system. If malfunction is suspected, it can be replaced with an exchange relay by loosening the four screws on the base plate.

(c) If the LOAD head is removed and then replaced, extreme care must be taken to center the diaphragm pivot point in the base plate guide hole to prevent any possibility of drag.

GUARANTEE:

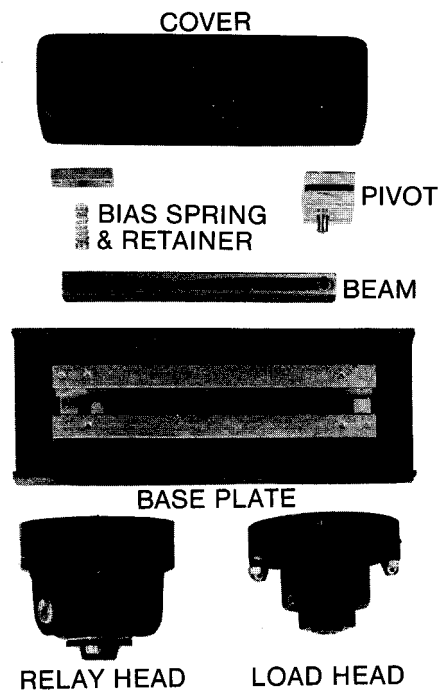
The Ratio Relay will be reconditioned free of charge if any failure occurs within the first year of service, provided filtered air is used and no physical damage is evident.

PARTS LIST & PRICES PT-AR

Number	Description	Price
AR-01	COVER	\$ 5.00
AR-02	PIVOT BLOCK	20.00
AR-03	BIAS SPRING & RETAINER	5.00
AR-04	BEAM S/S	25.00
AR-05	BASE PLATE	45.00
AR-06	RELAY HEAD	75.00
AR-07	LOAD HEAD	25.00
PT-AR	COMPLETE INSTRUMENT	250.00

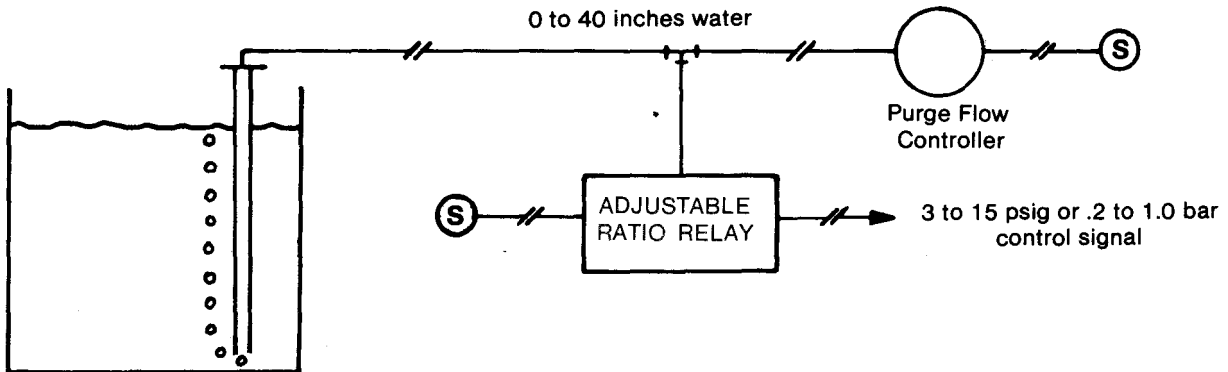
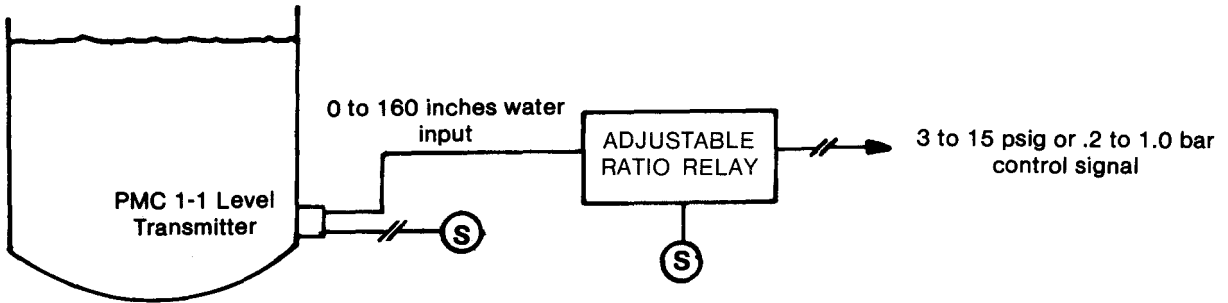
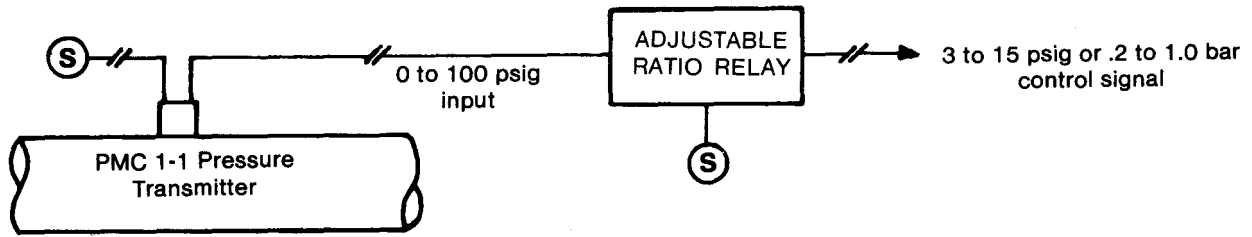
*All parts noted above are shipped complete with screws and nuts

**All connections are 1/4" NPT (U.S. Pipe Thread)



PAPER MACHINE COMPONENTS, INC.
 Miry Brook Road
 Danbury, Connecticut, U.S.A. 06810
 Tel. (203) 792-8686 Fax. (203) 743-2051

APPLICATIONS



ORDERING INFORMATION

- SPECIFY:
1. PMC Adjustable Ratio Relay
 2. Model: PT-AR
 3. Input Range *e.g. 0 to 30" water, 0 to 96.4 psig*
 4. Output Range *e.g. 3 to 15 psig, 0.2 to 1.0 bar*



PAPER MACHINE COMPONENTS INC
Miry Brook Road
Danbury, Connecticut, U.S.A. 06810
Telephone: (203) 792 8686