

# INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS FOR FAIRCHILD MODEL 66 STAINLESS STEEL PNEUMATIC PRESSURE REGULATOR

## GENERAL INFORMATION

The Model 66 is a precision pneumatic regulator for use in high temperatures, corrosive atmosphere and with corrosive gases.

### Specifications

Flow capacity ..... 22 SCFM max.  
(100 psig [7.0 BAR] (700 kPa) supply;  
20 psig [1.5 BAR] (150 kPa) set

Exhaust capacity ..... 1 SCFM  
(Downstream pressure 5 psig [.35 BAR] (35 kPa)  
above set pressure)

Sensitivity ..... 1" W.C.  
Effect of supply ..... Less than .1 psig [.007 BAR] (.7 kPa)  
pressure variation ..... for 25 psig [1.7 BAR]  
(170 kPa) change

Max. Supply pressure ..... 500 psig [35 BAR] (3500 kPa)

Mounting ..... line or panel

Temperature ..... -65° to +480° F

## PRINCIPLES OF OPERATION

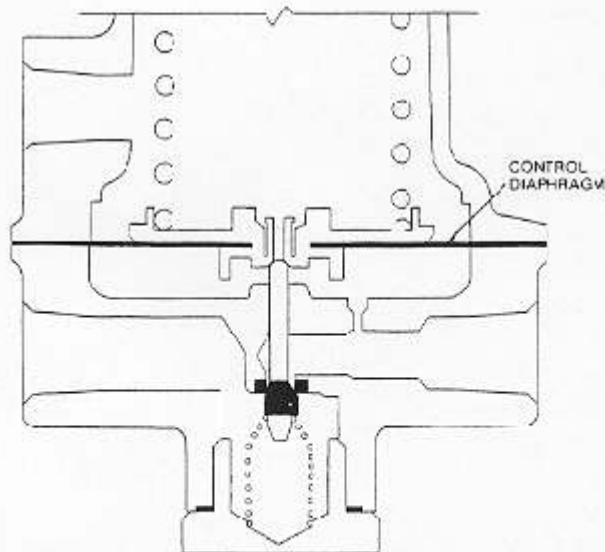
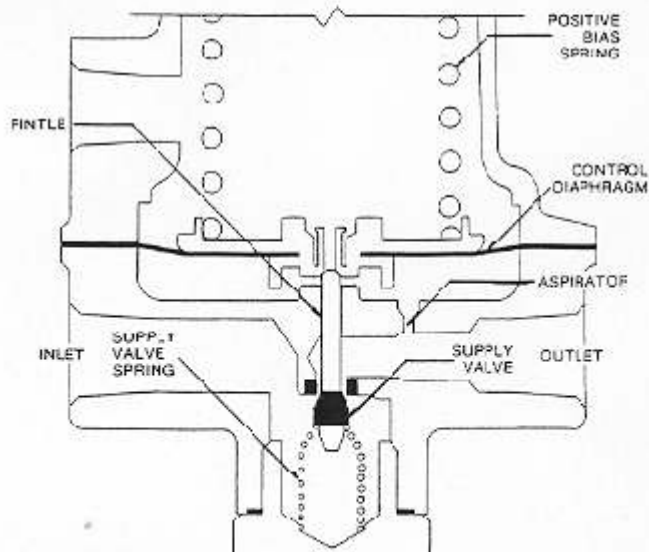
With supply pressure turned off and the adjusting knob or screw turned completely out, allowing the positive bias spring to be relaxed, the supply valve is seated because of the upward force of the supply valve spring. When supply air is introduced to the inlet port, it exerts pressure against the bottom of the supply valve and further insures seating. As the adjusting knob or screw is adjusted to a specific setpoint, it compresses the positive bias spring which exerts a force against the top of the control diaphragm. As the diaphragm moves down, the force transmitted through the pintle opens the supply valve, allowing supply air to be routed to the outlet port. Outlet (downstream) pressure is transmitted through the aspirator to the bottom of the control diaphragm. The force due to downstream pressure acting upward on the bottom of the control diaphragm, aided by the supply valve spring force acts against the positive bias spring force exerted downward on the top of the control diaphragm so that these forces are in balance.

This condition is not achieved until output pressure reaches the desired setpoint; until then the downward force opens the supply valve, allowing supply air to be routed to the outlet port. The increase in downstream pressure on the bottom of the control diaphragm causes it to move upward against the positive bias spring force allowing the supply valve to throttle, maintaining output pressure.

When setpoint is reached the force acting on the bottom of the control diaphragm is in balance with the force acting on the top of the control diaphragm.

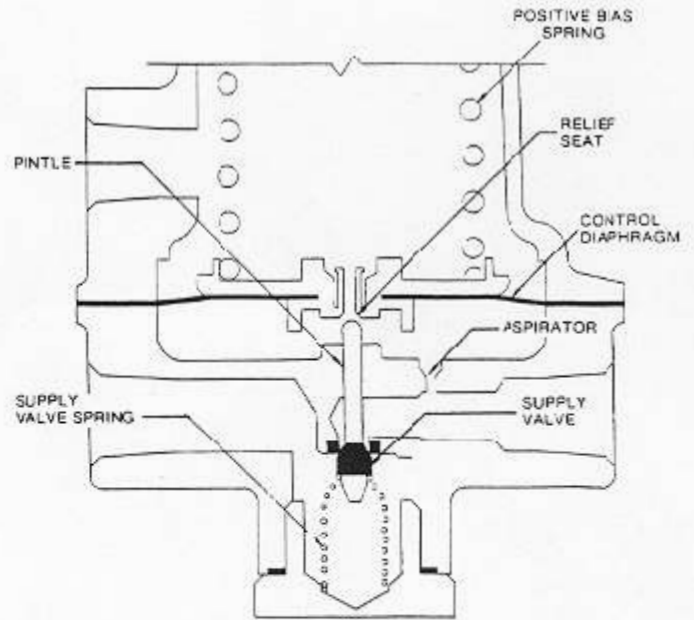
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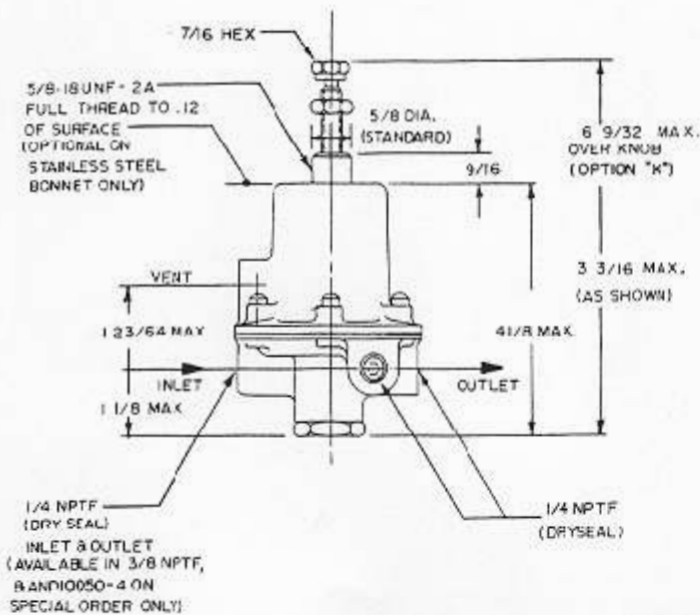
If downstream pressure increases above setpoint, the increased pressure is transmitted through the aspirator tube to the underside of the control diaphragm. The force due to downstream pressure acting on the diaphragm area will move the diaphragm up allowing the supply valve to be seated. As the diaphragm continues to move up, the relief seat will lift away from the end of the pintle, allowing downstream air to be vented, thus reducing pressure.

If downstream pressure decreases below setpoint, the pressure decrease is communicated through the aspirator to the underside of the diaphragm. The decrease in pressure on the underside of the diaphragm will cause an unbalance, allowing positive bias spring force to move the diaphragm down, causing the pintle to seal off the relief seat. As the diaphragm continues to move down, the supply valve will open through the pintle and allow air to enter the outlet port. The throttling action continues until spring force on top of the diaphragm is in balance with outlet pressure and supply valve spring force on the bottom.



## INSTALLATION

Clean all pipe lines to remove dirt and scale before installation is made. Apply minimum amount of pipe compound to male threads of air line only. Start with third thread back and work away from end of line to avoid possibility of getting compound into regulator. Install regulator in air line; body is fitted with a 1/4" NPT for inlet and outlet connections. Regulator can be mounted in any position without affecting its operation. Inlet and outlet connections are labelled (look for arrows denoting direction of flow on underside of unit) and should be tightened securely. Avoid undersized fitting that will limit flow through the regulator and cause pressure drop downstream. The use of a filter to remove dirt and entrained liquid in the air line ahead of the regulator is recommended for best performance.



## ADJUSTMENTS

No field adjustments are required.

## OPERATION

Relieve pressure on range spring before putting regulator into service for the first time. To operate, turn the adjusting screw slowly in a clockwise direction until required downstream pressure is obtained. Turned in this

direction, the screw compresses the range spring causing increased output pressure. For decreased output pressure, turn the screw counterclockwise.

## MAINTENANCE

The regulator is easily disassembled for the occasional cleaning or removal of foreign matter. Before this is done, however, vent upstream and downstream air to prevent escape of fluid when regulator is disassembled. There is no need to remove the regulator from the pipe line; remove the bottom cap of the unit and pull out the inner valve. Wash inner valve with solvent exercising care to

avoid damaging the valve facings. Replace carefully.

The vent hole in the bonnet should be kept clear. A slight flow through this hole is necessary for the proper operation of the regulator.

The adjusting screw should be lubricated with Molycote type "G" grease.

## TROUBLE SHOOTING

Problem	Check
Leakage	Body screw tightness Diaphragm
High Bleed	Relief pintle and relief seat for damage or contamination
Difficult to Adjust	Adjusting screw and ball

## REPAIR PARTS LIST

CA-12144-1 service kit is available for regulator maintenance.

## Legal Notice

The information set forth in the foregoing Installation, Operation and Maintenance Instructions shall not be modified or amended in any respect without prior written consent of Fairchild Industrial Products Company. In addition, the information set forth herein shall be furnished with each product sold incorporating Fairchild's unit as a component thereof.

Index	Part No.	Description
1	EA-8590	Locknut
2	EA-8583	Adjusting Screw
3	EB-8588	Spring Seat
4	EB-8587-3	Range Spring
* 5	EB 8578-( )	Diaphragm Assembly
6	EB-9051-1	Bonnet Assembly
7	EB-8612	Body
* 8	EB-8580	Pintle
* 9	EB-8586	Pintle Spring
*10	EA-8585	Gasket
11	EB-8584	End Cap
12	EA-8589	Screw

\*EA-12144-1 Kit Components

## SERVICE KIT INSTALLATION

1. Check parts in the EA-12144-1 Service Kit against parts marked with an asterisk in the exploded view and the associated table.

2. Loosen Lock Nut (1) and turn out Adjusting Screw (2) to relieve compression on Spring (4).

3. Remove six Bonnet Screws (12) from Bonnet Assembly (6). Set aside Bonnet Assembly (6), Spring Seat (3) and Spring (4).

4. Remove and discard Diaphragm Assembly (5).

5. Carefully unscrew end cap (11) to relieve compression on Pintle Spring (9).

6. Remove End Cap (11), Gasket (10), Pintle Spring (9) and Pintle (8). Discard Gasket, Pintle Spring and Pintle.

7. Clean Body Assembly (7) with a suitable solvent and blow dry with compressed air.

8. Secure Pintle Spring (9), Gasket (10) and Pintle (8) from kit.

9. Assemble Gasket (10) to End Cap (11).

10. Place Pintle Spring (9) narrow end up into End Cap (11). Insert Pintle (8), valve end down into end of Pintle Spring (9).

11. Insert assembly from Step 10 into bottom of Body Assembly (7) insuring that long end of pintle fits into center hole of Body Assembly (7).

12. Place Diaphragm Assembly (5), piston facing up on Body Assembly (7) so that six holes in Diaphragm Assembly (5) are aligned with holes in the Body Assembly (7) and Pintle (8) is seated in the center hole of Diaphragm Assembly (5).

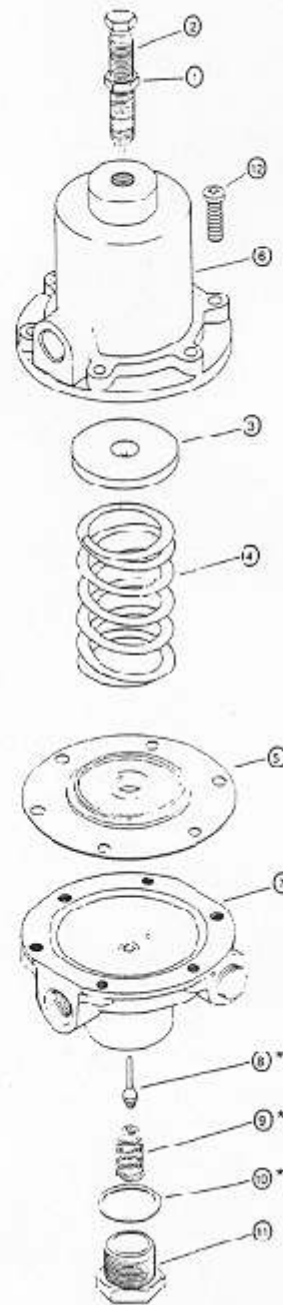
13. Set Spring (4) in the piston cup of Diaphragm Assembly (5). Place Spring Seat (3) recess facing up on top of Spring (4).

14. Position Bonnet Assembly (6) on Diaphragm Assembly (5) so that six holes in Bonnet Assembly (6) are aligned with the holes in Body Assembly (5). The vent on Bonnet Assembly (6) should be directly over the port marked IN on Body Assembly (7).

15. Insert six Bonnet Screws (12) through Bonnet Assembly (6), Diaphragm Assembly (5), to Body Assembly (7). Alternately tighten opposite screws to guard against warping Body Assembly (7).

16. Lubricate Knob Assembly Screw (1) with Molykote.

17. Reinstall the regulator in accord with installation instructions in the IOM and follow instructions in the Operation section for placing the regulator back in service.



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