

1800CPB2 Service Regulators

Operating Instructions Manual



AMERICAN
METER COMPANY

1800CPB2 Series Service Regulators

1800CPB2 General Information:

1800CPB2 Series Regulators are pilot loading regulators capable of controlling a set constant outlet pressure (1 to 30 PSIG) within $\pm 1\%$ of the absolute set pressure over a wide range of flow rates. Model 1883CPB2 Regulators are also available with overpressure shut-off protection.

Available valve body sizes: 3/4" x 3/4", 3/4" x 1", 1" x 1", 1" x 1-1/4", 1-1/4" x 1-1/4" NPT or BSP-TR.

Maximum inlet pressure, normal service (P1): Depending on orifice size, up to 125 PSIG.

Maximum outlet set pressure, normal service (P2): up to 30 PSIG.

Orifice Sizes

Orifice Size *	Part Number	
	Standard	w/ OPSO
1/8" x 3/16"	72494P030	72751P020
3/16"	72494P020	72751P011
1/4"	72494P021	72751P012
5/16"	72494P022	72751P013
3/8"	72494P023	72751P014
1/2"	72494P025	72751P016

*See brochure SB-8520 for maximum inlet recommendations and capacity performance for each orifice size.

Preparations:

Caution:

Do not connect the inlet of the regulator to a normal pressure source higher than that recommended. Never connect the regulator outlet to the source of pressure. Observe the flow direction arrow on the valve body. If inlet pressure can exceed the maximum regulator outlet pressure rating, some form of overpressure protection may be required. To prevent damage to the regulator and possible personal injury, inlet and outlet pressures must not exceed the regulator pressure rating stated on page 4.

1. Install, operate, inspect and maintain the regulator as outlined in the following instructions and in accordance with your company's policies and applicable federal, state and local codes and laws. Failure to follow these instructions may result in damage to the regulator or personal injury.
2. Check installation location for suitability. It is possible that physical changes have been made to the building site since the regulator and location were originally selected.
3. Examine regulator for shipping damage.
4. Check regulator and piping for foreign matter which may have accumulated during shipment or handling.
5. Check tag information to determine if regulator is suitable for intended service.
6. Suitable stop valve(s) should be installed and should be conveniently located.
7. Filters are available from American Meter for applications where pipeline contaminant's are suspected to be present.
8. Regulators may be used at temperatures between -20° F and +150° F (-30° C and +65° C).

Installation:

(Numbers in parentheses refer to figure 1, page 3.)

1. Remove all shipping plugs.

2. Remove shipping marble under seal plug (14).
3. Use good piping practice. Be sure piping and regulators are free of dirt, pipe dope and other debris. Apply pipe dope to male threads only.
4. Install regulator. Make certain it is piped correctly with inlet pipe connected to the regulator inlet connection and flow is in the direction as indicated by arrow located on valve body (19).
5. Turn gas on slowly. If an outlet stop valve is used, it should be opened first. Do not overload the diaphragm with a sudden surge of inlet pressure.
6. Assure that there are no leaks and all connections are tight.
7. The 1800CPB2 Series regulator is preset at the factory. Should you decide to adjust the set pressure, perform the following:
 - (a) Turn gas off and depressurize the system.
 - (b) Install outlet pressure gauge.
 - (c) Turn gas on slowly.
 - (d) Establish a flow rate - 200 to 300 SCFH.
 - (e) Turn pressure spring adjustment screw (28) clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure.
 - (f) Establish the set pressure within the range limits of the regulator (1 to 30 PSIG).
 - (g) To test for the regulator's ability to fully shut off (lock-up), shut off all flow downstream of the regulator. At lock-up, the outlet pressure will be somewhat higher than the set pressure. However, if the pressure continues to rise after 3 seconds, the regulator must be repaired. Observe for 30 seconds.
 - (h) When the set pressure has been properly adjusted, depressurize and remove gauge(s) and lines.
 - (i) Pressurize and check all connections for leaks.

Inspection:

(Numbers in parentheses refer to figure 1.)

Inspection and maintenance of the 1800CPB2 Series regulator has been simplified for practical reasons. Repair parts are offered if maintenance of the regulator is required.

Inspection of the valve seat disc (1) and orifice valve (7) may be performed in the field. Follow the procedure described below. Care should be exercised to prevent foreign matter from entering the regulator.

Procedure for Inspection of Valve Seat Disc and Orifice

1. Shut off gas supply and depressurize the regulator system.
2. Remove pilot supply tube (27) and two bolts (5) securing the diaphragm case (8) to the valve body (19). Separate the diaphragm case from the valve body.
3. Visually check the seating edge of the orifice (7). If it is nicked or damaged, it should be replaced with a new orifice to provide proper shutoff. See Maintenance instructions for replacing the orifice.
4. Inspect the surface of the valve seat disc (1). If it is scored or uneven replace it as outlined in the Maintenance instructions.
5. Install new seal ring (2) in the diaphragm case groove.
6. Inspect unit for cleanliness and proper positioning of the parts. Pay particular attention to the proper positioning of the seal ring (2) in the groove.
7. Install the diaphragm case (8) on the valve body (19).

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Replace and tighten the valve body bolts (5) and pilot supply tube (27).

8. Proceed to Steps 5 and 6 of the installation instructions.

Caution:

Regulators are pressure control mechanisms having numerous moving parts which can wear. In addition, regulator damage may occur from external sources. For these reasons, the regulator should be periodically inspected and checked for proper operation. The frequency of inspection will depend on the severity of the service conditions and the requirements of applicable local, state and federal codes and regulations.

Maintenance:

(Numbers in parentheses refer to figure 1.)

Replacing Seat Disc:

1. Carefully insert the tip of a knife along the edge of the seat disc (1) and lift the seat disc out of the plunger (17).
2. Install a new seat disc (1) into the plunger (17), by

pressing into place. Make sure that the disc is pressed completely into the plunger (17).

3. Proceed to Steps 5, 6, 7 and 8 of the Inspection Instructions.

Caution:

Handling and Disposal

"As a knowledgeable user of American Meter's products, we are sure that you are aware that parts in the Company's meters and regulators contain or are coated with heavy metals such as cadmium, zinc, lead and chromium. Obviously, therefore, repair or refurbishment of this equipment should take into account the presence of these materials and should comply with all state and federal requirements concerning worker protection, proper disposal and safety, including protection against exposure to dust and fumes."

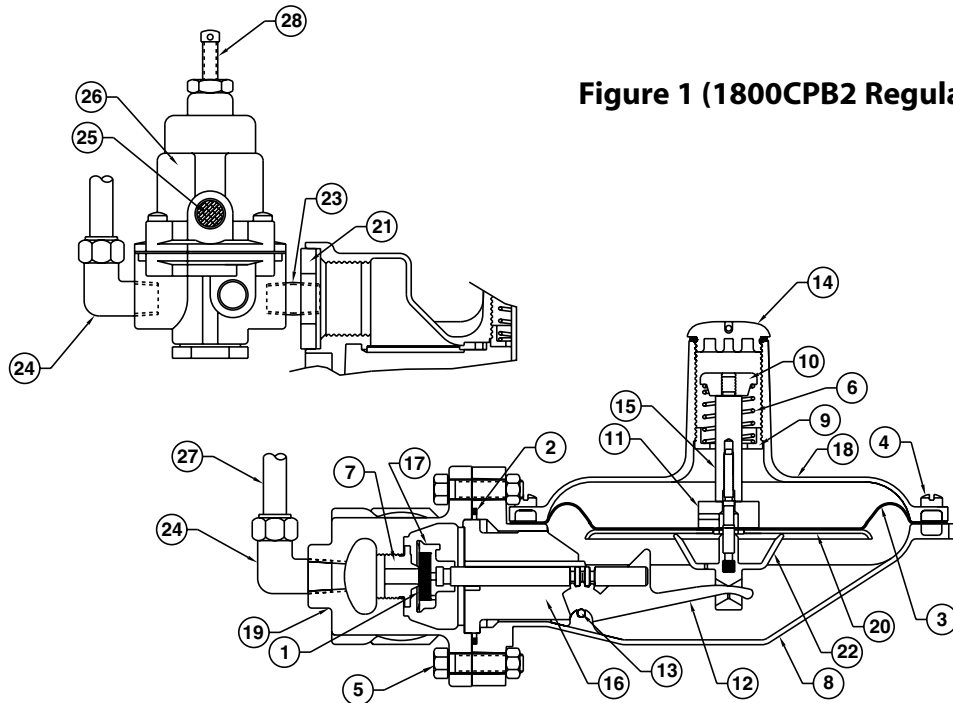


Figure 1 (1800CPB2 Regulator)

Item No.	Description	Item No.	Description	Item No.	Description	Item No.	Description
1	Disc, Valve Seat	8	Diaphragm Case	15	Rod, Extension	22	Stem, Diaphragm
2	Seal Ring, Valve Body	9	Retainer, Spring	16	Guide, Valve Plunger	23	Nipple, Close
3	Diaphragm	10	Restrictor, Spring	17	Assy, Seat Disc Holder & Plunger	24	Fitting
4	Screw, Diaphragm Case	11	Spacer	18	Assembly, Top	25	Screen Pilot Vent
5	Bolt, Valve Body	12	Lever	19	Valve Body	26	Regulator, Pilot
6	Spring, Closing	13	Pin, Lever	20	Plate, Diaphragm	27	Tube, Pilot Supply
7	Valve, Orifice	14	Plug, Seal	21	Reducer Bushing	28	Pressure Adj. Screw

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Replacing Orifice:

(For 1800CPB2 only.)

(Numbers in parentheses refer to figure 1, page 3.)

Caution:

Regulators that have an orifice size change different than shown on the tag must have their set pressure reestablished. Mark new orifice size on its tag.

1. Shut off gas supply and depressurize the regulator system.
2. Remove pilot supply tube (27) and two bolts (5) securing the diaphragm case (8) to the valve body (19). Place the diaphragm case aside and protect the seat disc from dirt particles.
3. Remove the orifice valve (7) with a 7/8" hex socket wrench.
4. Sparingly apply Henkell G30 or Loctite "Stainless Steel PST" thread sealant or equivalent (not supplied) to the new orifice threads.
5. Carefully start the threads of the orifice into the valve body and tighten to specification. Care must be taken to prevent nicking the orifice.
6. Proceed to Steps 5, 6, 7 and 8 of the Inspection Instructions.

Resetting The OPSO:

(For 1883CPB2 only.)

(Numbers in parentheses refer to figure 2.)

1. Shut off gas supply and depressurize the regulator system.
2. Unscrew the OPSO lower diaphragm case cap (body plug) (1).
3. Pull back the knurled plunger (2) until the diaphragm stem (3) repositions (an audible click).
4. Replace the OPSO diaphragm case cap (body plug) (1) after examining the o-ring (4) for damage. **Body plug must be installed before turning on the gas supply.**
5. Proceed to Steps 5 and 6 in Installation instructions.

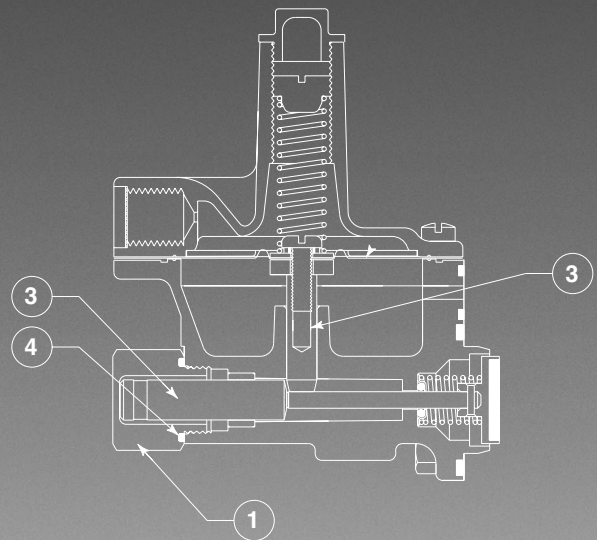


Figure 2.

Regulator Pressure Rating

125 PSIG = Maximum recommended inlet pressure for normal service. Maximum recommended pressure may vary with orifice size.

175 PSIG = Maximum inlet pressure for abnormal or emergency service, without causing damage to regulator case.

30 PSIG = Maximum outlet pressure for normal service.

45 PSIG = Maximum outlet pressure which can be contained by pressure carrying components (no flange leakage to atmosphere except for normal relief action). **If regulator is subjected to these conditions, it should be removed from service.**

50 PSIG = Maximum outlet pressure for abnormal service without damage to internal components. **If regulator is subjected to these conditions, it should be removed from service.**

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