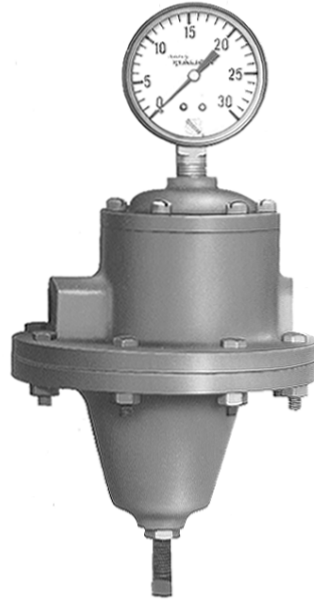




PRO OIL PRESSURE REGULATOR



WARNING

These instructions are intended for use only by experienced, qualified combustion start-up personnel.

Adjustment of this equipment and its components, by unqualified personnel, can result in fire, explosion, severe personal injury, or even death.

TABLE OF CONTENTS

	<u>Subject</u>	<u>Page</u>
A.	General Information	2
B.	Receiving and Inspection	2
C.	Capacities	3
D.	Dimensions	3
E.	Installation	4
F.	Operation	5
G.	Maintenance	5

These instructions are intended to serve as guidelines covering the installation, operation, and maintenance of Hauck equipment. While every attempt has been made to ensure completeness, unforeseen or unspecified applications, details, and variations may preclude covering every possible contingency. **WARNING: TO PREVENT THE POSSIBILITY OF SERIOUS BODILY INJURY, DO NOT USE OR OPERATE ANY EQUIPMENT OR COMPONENT WITH ANY PARTS REMOVED OR ANY PARTS NOT APPROVED BY THE MANUFACTURER.** Should further information be required or desired or should particular problems arise which are not covered sufficiently for the purchaser's purpose, contact Hauck Mfg. Co.



WARNING

This equipment is potentially dangerous with the possibility of serious personal injury and property damage. Hauck Manufacturing Company recommends the use of flame supervisory equipment and fuel safety shutoff valves. Furthermore, Hauck urges rigid adherence to National Fire Protection Association (NFPA) standards and insurance underwriter's requirements. Operation and regular preventative maintenance of this equipment should be performed only by properly trained and qualified personnel. Annual review and upgrading of safety equipment is recommended.

A. GENERAL INFORMATION

The Hauck PRO Oil Pressure Regulator is designed to function as an inexpensive, rugged self-contained pressure reducing valve. Its self-contained design eliminates the need for external actuators or control lines. The PRO can be used on systems operating with any grade of fuel oil up to and including No. 6, with viscosities to 1000 SSU, and with oil supply pressures to the regulator not exceeding 50 psig. The maximum operating temperature of the regulator is 300°F.

B. RECEIVING AND INSPECTION

Upon receipt, check each item on the bill of lading and/or invoice to determine that all equipment has been received. A careful examination of all parts should be made to ascertain if there has been any damage in shipment.

IMPORTANT

If the installation is delayed and the equipment is stored outside, provide adequate protection as dictated by climate and period of exposure. Special care should be given to all motors and bearings, if applicable, to protect them from rain or excessive moisture.

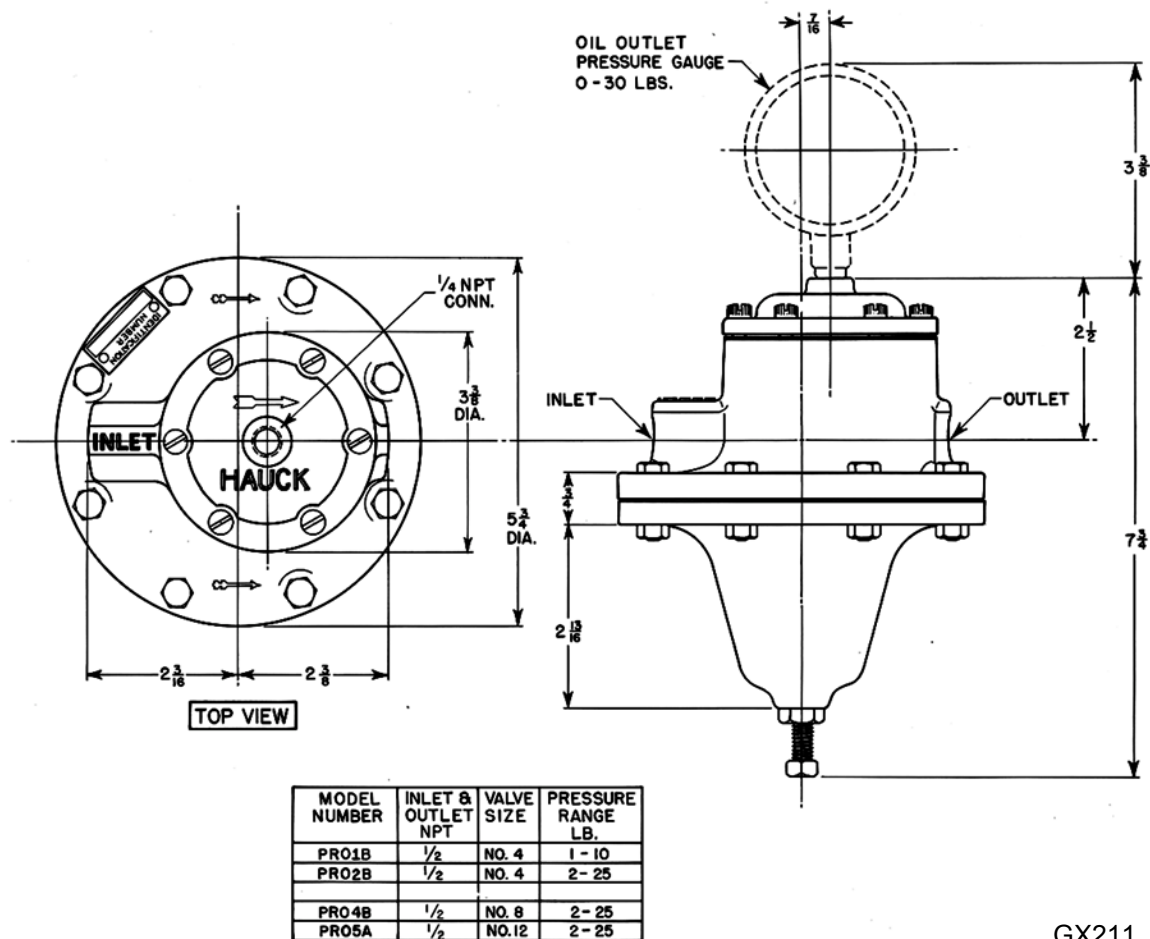
C. CAPACITIES

Regulator Model Number	NPT Pipe Size	Recommended Maximum Capacity*	Maximum Discharge Pressure
PRO1B	1/2	50gph	10 psig
PRO2B	1/2	30gph	25 psig
PRO4B	1/2	125gph	25 psig
PRO5A	1/2	150gph	25 psig

*Recommended maximum capacity based on a 10% droop at the maximum discharge pressure. Actual flow curves, showing relationship between droop and capacity, are available on request.

Figure 1. Capacity Table

D. DIMENSIONS



GX211

Figure 2. Dimensions

E. INSTALLATION

1. Ensure that both of the elements required upstream of the PRO have been properly positioned and installed. For proper installation, refer to the instruction sheets that accompany each unit. As depicted in Figure 3, the following items should be present:
 - a. A shutoff valve is required in the piping system since the PRO is not designed to provide a tight shut off of the oil.
 - b. A 0.008" edge plate oil filter (0.015" for capacities above 100 gph) is required immediately upstream of each regulator.
2. Install the PRO in a horizontal oil line as close to the burners as possible. The regulator should be located on the horizontal centerline of the device downstream of the regulator. This will eliminate pressure differentials caused by liquid heads. **Mount the PRO with the arrow in the body pointing in the direction of the oil flow and the adjusting screw pointing down.**
3. Adjust the PRO to achieve a uniform oil-air ratio and consistent flame characteristics from burner low fire to high fire by accomplishing the following:
 - a. Ignite the burner and ensure that the burner controls are properly adjusted.
 - b. Loosen the lock nut restraining the PRO adjusting screw.
 - c. Move the burner control lever from the low fire to high fire position and observe the condition of the flame.
 - d. Rotate the adjusting screw as outlined below:

If the flame changes from a lean flame at low fire to a rich flame at high fire, rotate the adjusting screw in a counterclockwise direction to reduce the oil pressure.

If the flame changes from a rich flame at low fire to a lean flame at high fire, rotate the adjusting screw in a clockwise direction to increase the oil pressure.

- e. Tighten the PRO adjusting screw lock nut.

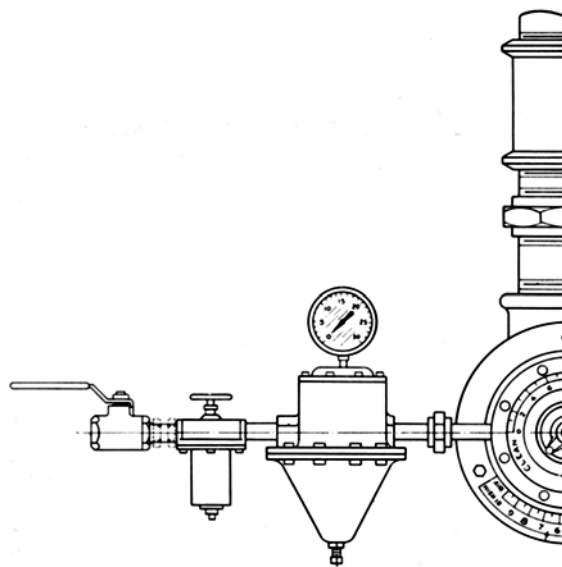


Figure 3. PRO regulator (with optional pressure gauge) and edge plate filter in a Hauck 780 PAC series burner supply line.

F. OPERATION

The oil supply line pressure can range up to 50 psig at the inlet connection of the PRO.

Once properly adjusted in accordance with step 3 under INSTALLATION, this regulator should require no additional adjustments.

The PRO is designed for use as an oil pressure regulator, not as an oil shutoff valve.

G. MAINTENANCE

All PRO regulators are designed for maintenance free operation. Under normal usage no service or adjustment should be necessary. However, if service should become necessary, follow these steps:

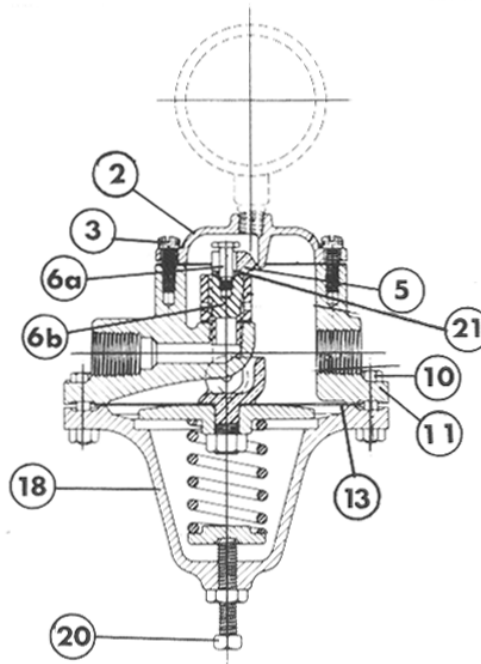


Figure 4. Drawing showing the PRO internal components

To inspect and/or replace a throttling valve, accomplish the following: Numbers in () refer to Figure 4).

1. Remove the cap (2) from the body (11) by unfastening the 6 cap screws (3).
2. Slide the yoke (5) from the throttling valve stem (6a).
3. Remove the stem. Inspect the seating surface of the stem as well as the seating surface of the throttling valve body (6b). Both surfaces should be smooth and free from surface imperfections. Inspect the throttling valve discharge holes to insure that they are not restricted.
 - a. If the valve seating have very slight surface imperfections, lap the stem into the body until the surfaces are again smooth. Use a medium grit valve grinding compound for the lapping process. The compound should be readily available from any automotive supply house.
 - b. If surface imperfections cannot be removed by lapping, install a new valve unit (6). Valve units shipped from the factory have matched valve stems and bodies, and must be installed as a unit. Do not interchange throttling valve stems and bodies.

- After completion of inspection or replacement of the throttling valve unit, reassemble the regulator by sliding the yoke (5) on the throttling valve stem (6a). Be sure that the contoured washer (21) on the valve stem is located against its matching surface (See Figure 5).

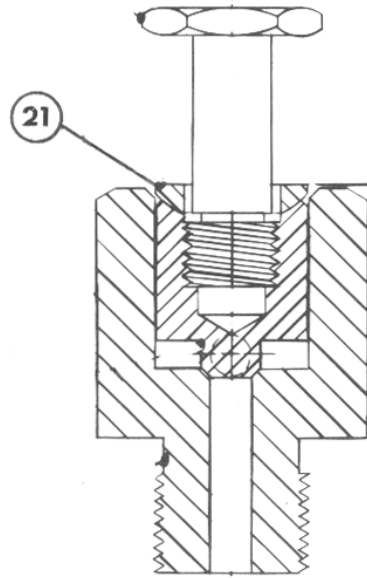


Figure 5.

- Remove, by scraping, all traces of the gasket compound from the matching cap and body flange surface. Wash the surfaces with a solvent to remove all traces of grease or oil. Allow the surfaces to dry before continuing.
- Coat the flange surface of the regulator cap with Loctite Type 515 gasket compound.
- Place the regulator cap on the regulator body and install the 6 cap screws (See Figure 6). First **loosely tighten** all 6 cap screws in the sequence shown in Figure 6. Then completely tighten all of the screws by repeating the sequence. It is important that the preliminary tightening be done in order to prevent cocking of the flange. Under no circumstances should the screws be pulled completely tight without preliminary tightening.

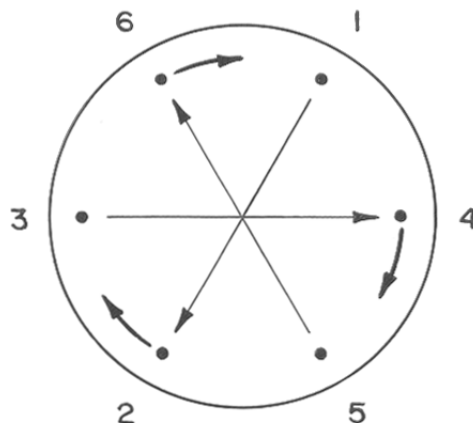
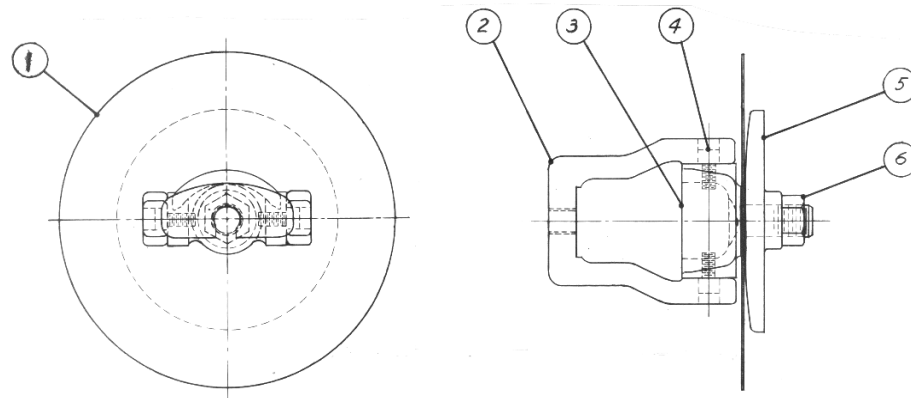


Figure 6. Typical six screw tightening sequence

To inspect and/or replace the diaphragm, accomplish the following: (Numbers in () refer to items in Figure 4 unless otherwise indicated).

1. Unscrew the adjusting screw (20) to reduce the compressive force of the spring.
2. Remove the cap (2) from the body (11) by unfastening the 6 cap screws (3).
3. Slide the yoke (5) from the throttling valve stem (6a).
4. Remove the body flange bolts (10) and separate the cover (18) from body.
5. Remove and inspect the diaphragm as follows (See Figure 7).
 - a. Remove the hex jam nut (6).
 - b. Remove the diaphragm disk (5).
 - c. Remove and inspect the diaphragm (1). Replace or reinstall the diaphragm, as appropriate.
 - d. Install the diaphragm disk.
 - e. Install the hex jam nut and tighten.



NOTE
Use non hardening compound (Permatex No. 2 or equivalent) between item 1 and item 3, item 1 and 5 and between diaphragms where two are used.

Figure 7.

6. Prior to reassembly of the unit, inspect the body and cover flanges to insure that both surfaces are free from imperfections which could cause leaks.
7. Coat the inner edge of the body flange where it contacts the upper diaphragm with No. 2 non-hardening Permatex.

8. Reassemble the regulator by sliding the yoke(s) on the throttling valve stem (6a). Be sure that the contoured washer (21) (See Figure 5) on the valve stem is located against its matching surface.
9. Replace the regulator cover (18) against the body and fasten it in place using the 3 flange bolts. (10).
10. Remove, by scraping, all traces of the gasket compound from the matching cap and body flange surface. Wash the surfaces with a solvent to remove all traces of grease or oil. Allow the surfaces to dry before continuing.
11. Coat the flange surface of the regulator cap with Loctite Type 515 gasket compound.
12. Place the regulator cap on the regulator body and install the 6 cap screws (See Figure 6). First **loosely tighten** all 6 cap screws in the sequence shown in Figure 6. Then completely tighten all of the screws by repeating the sequence. It is important that the preliminary tightening be done in order to prevent cocking of the flange. Under no circumstances should the screws be pulled completely tight without preliminary tightening.