CPF 20/80
PARTICULATE AIR FILTER
O. M. 04143

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⚠ WARNING

**Do not proceed with these instructions until you have READ the orange cover of this MANUAL and YOU UNDERSTAND its contents. *
These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity.**

***If you are using a Clemco Distributor Maintenance and Part Guide, refer to the orange warnings insert preceding the Index before continuing with the enclosed instructions.**

Electronic files include a Preface containing the same important information as the orange cover.

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1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 These instructions cover setup, operation, maintenance, replacement parts, and important warnings to safely operate the Clemco CPF Particulate Air Filter.

1.1.2 These instructions also contain important information required for safe operation of the filter. All respirator users and maintenance personnel must be trained to safely operate and maintain the filter and respirators. The respirator users and all personnel involved with the breathing air process must be able to identify potential hazards associated with breathing compressed air. Before using the filter, all personnel involved with the operation must read this entire manual, including the orange cover, plus the respirator manuals and all accessory manuals.

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-1998, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:

This is the safety alert symbol. It is used to alert the user of this equipment of potential personal injury hazards.

Obey all safety messages that follow this symbol to avoid possible injury or death.

CAUTION

Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

⚠ CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

⚠ WARNING

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

1.3 OSHA Compliance

1.3.1 When CPF Filters are used with a NIOSH-approved supplied-air respirator, meets OSHA regulations 1910.94(a)(6)and 1910.134 (i)(5)(iii), requiring air for abrasive blasting respirators shall be free of harmful quantities of dust, mists, and noxious odors. CPF filters provide a pressure-reducing valve to lower the pressure to meet the pressure requirements of the respirator, providing that the filter's inlet pressure does not exceed 150 psi.

1.3.2 Important information concerning the quality of compressed air, the use of respirators, and exposure to hazardous dust is found in OSHA regulations 29 CFR 1910.94, 29 CFR 1910.134 and 29 CFR 1910.1000. Note regulations 29 CFR 1910.94 and 29CFR1910.134 require that abrasive blasting respirators meet the requirements for supplied-air quality. For total compliance, the system must also include a NIOSH-approved supplied-air respirator.

1.3.3 All supplied-air respirators using non-oil-lubricated or oil-lubricated compressors shall have a carbon monoxide monitor to meet the requirements of CFR 1910.134 (i)(6) and (i)(7).

1.3.4 OSHA regulations 29 CFR1910 and 29CFR1926 require that respirator air line couplers be incompatible with air lines for non-respirable use. This prevents inadvertent servicing of respirators with non-respirable gases or oxygen. It is the employer's or facility owner's responsibility to comply with the regulation.

1.3.5 The CPF filter is to be used with NIOSH-approved supplied-air respirators in atmospheres not immediately dangerous to life or health (IDLH), with as least 19.5% oxygen, and from which a user can escape without the use of the respirator.

1.3.6 Breathing air used to supply the filter must be respirable breathing air and contain no less than 19.5 volume-percent of oxygen. Breathing air shall also meet the requirements for Grade D or higher quality, as described in Compressed Gas Association Commodity Specification pamphlet G-7.1., titled Commodity Specification For Air, published by Compressed Gas Association Inc., Chantilly, VA. CGA Website is cganet.com

⚠ WARNING

Respirator(s) must be supplied with at least Grade "D" quality respirable air, containing no less than 19.5 volume-percent of oxygen. Breathing air requirements are described in Compressed Gas Association, G-7.1., Commodity Specification For Air, published by Compressed Gas Association Inc., Chantilly, VA. CGA Website is cganet.com. If air quality is unknown, consult a safety professional and/or industrial hygienist. Poor quality air will cause serious respiratory injury or death to the user.

1.4 General Description

1.4.1 The CPF is a particulate filter, which removes mists (including oil mist), water vapor and particulate matter, down to 0.5 micron in size from breathing air supplied by a breathing-air compressor. **The CPF Filter does not detect or remove carbon monoxide (CO) or any other toxic gases.** Filter effectiveness and cartridge life will be reduced considerably if the supplied air is heavily contaminated with particulate matter or moisture.

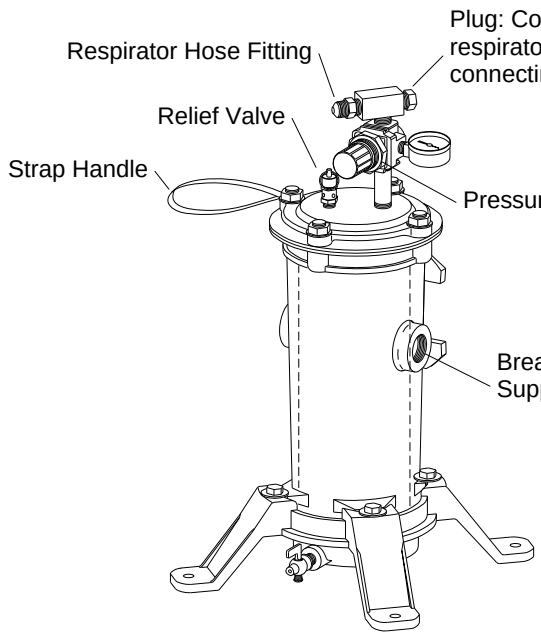
1.4.2 The main components of the filters are shown in Figure 1. The CPF-20 is equipped with an outlet that supplies filtered air to one or two supplied-air respirators. The CPF-80 has four outlets, and will accommodate up to four supplied-air respirators with total air requirement not to exceed 100 cfm.

⚠ WARNING

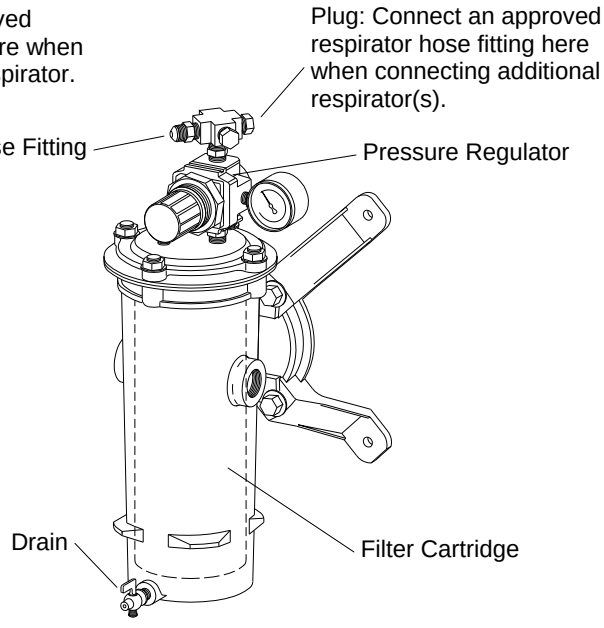
Respirators are NIOSH-approved to operate within specific pressure ranges. When connecting multiple respirators, make sure that all respirators are approved to operate within the same pressure range. Operating the respirator outside of the approved pressure range will increase or restrict airflow beyond permissible limits.

1.4.3 Compressed air enters the filter through either of the two side inlet ports. Moisture condensing inside the filter is drained through the petcock at the bottom of the filter body. Air is forced through a replaceable filter cartridge, which contains several filtering materials, which traps particulates.

1.4.4 Outlet pressure is adjusted by the knob on the pressure regulator. Both filters are equipped with a pressure relief valve. The relief valve is an audible signal that pressure is exceedingly high.



CPF-20
Shown with mounting bracket configured for freestanding use



CPF-80
Shown with mounting bracket configured for wall-mounting

Figure 1

2.0 ASSEMBLY

2.1 Mounting Bracket

2.1.1 Refer to Figure 2 and attach the mounting bracket to the four bottom lugs for freestanding, floor use, or to the four side lugs for wall mounting.

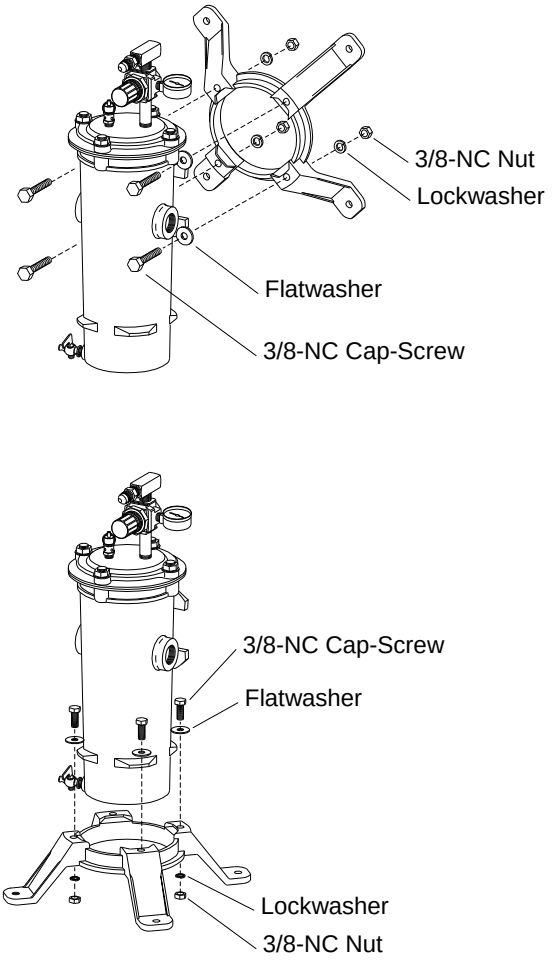


Figure 2

2.2 Regulator Assembly, Ref. Figure 3

NOTE: To ensure air tight seals, use Teflon tape on all male pipe threads. It is easiest to assemble the CPF regulator assembly, wrench tight in a vice, and then screw the assembly onto the cap.

2.2.1 Attach the male end of the 3/8" NPT tee, (cross manifold on CPF-80) to the pressure regulator outlet port (see direction of air-flow arrow on the regulator, the inlet is from the back of the arrow).

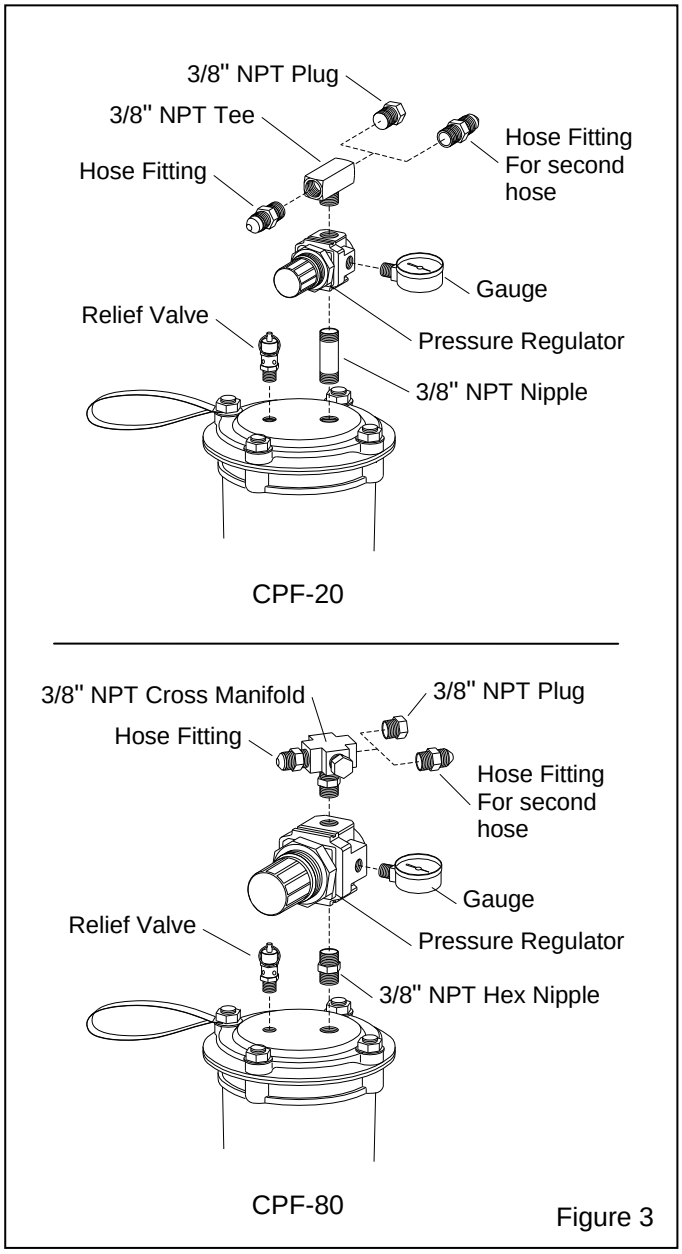


Figure 3

2.2.2 Attach a respirator hose fitting that is approved for use with the respirator (the fitting is supplied with the respirator hose), to one of the ports on the 3/8" branch tee (cross manifold on CPF-80). Plug the other port(s) when connecting a single respirator.

2.2.3 Multiple outlets: When supplying air to additional respirators, remove as many plugs as required and replace them with approved hose fittings, up to two on the CPF-20, up to four on the CPF-80. When multiple respirators are used with the CPF, they must all be approved to operate within the same pressure range.

⚠ WARNING

Outlet fittings (the point of attachment) and respirator hose must be NIOSH-approved for use with the respirator. Use of non-approved fittings and hose will void the NIOSH approval of the respirator, and could restrict air flow. Do not use any bushings or reducers that reduce the internal diameter of the plumbing. Reduced air flow may result in ingress of hazardous dust, fumes or gases, exposing the user to immediate health risk and subsequent respiratory disease and possible death.

2.2.4 Attach the 3/8" x 2" nipple (3/8" hex nipple on CPF-80) to the regulator inlet port, and tighten the regulator assembly into the 3/8" port on the filter cap. Arrange the assembly so the outlet ports of the tee are accessible, and the regulator control knob is convenient to adjust.

2.2.5 Screw the pressure gauge into one of the regulator side ports, and position it so the pressure can be easily monitored.

2.2.6 Screw the relief valve into the remaining port on the cap.

3.0 AIR SUPPLY

⚠ WARNING

Air supply to this filter is critical to the safety of the user. Read this section and the respirator manuals carefully. Poor quality air will cause serious respiratory injury or death to the user. (See Toxic Dust Poisoning Warning on page 1.)

3.1 Air Quality

3.1.2 Air supplied to the filter's inlet must be at least Grade "D" quality. Special care must also be taken to avoid accidental connection to any other gas lines, such as, oxygen, acetylene, or nitrogen.

⚠ DANGER

CPF Filters are particulate filters. They do not remove carbon monoxide or other toxic gases. Air supplied to the filter inlet must be at least Grade "D" quality. Never connect the CPF Filter or any breathing-air line to an air source that has not been tested for gas contamination. The presence of unacceptable levels of carbon monoxide (CO) or other gases, or oxygen deficiency in the breathing air will cause death to the user.

⚠ WARNING

OSHA regulations 29 CFR 1910 and 29 CFR 1926 require that respirator air line couplers be incompatible with air lines for non-respirable use. This incompatibility prevents inadvertent supply of respirators with potentially hazardous, non-respirable gases, or oxygen. It is the employer's or facility owner's responsibility to comply with the regulations.

3.1.3 Prior to using the filter and respirator, read the owner's manual and all instructions, labels, and warnings related to the compressed air source. Take special care to abide by all warnings from the compressor manufacturer regarding compressor use.

3.1.4 A breathing-air-type-compressor must be used. The compressor must be equipped with necessary safety and monitoring devices, plus suitable in-line air filters and purifying equipment to assure breathing-air quality. [Reference OSHA Regulation 1910.134 (d)].

3.1.5 If an oil-lubricated compressor is used, it must be equipped with a high-temperature alarm or carbon monoxide (CO) alarm, or both. If only a high-temperature alarm is used, the air from the compressor must be tested frequently for the presence of carbon monoxide. [Reference OSHA Regulation 1910.134 (d)].

3.1.6 Regardless of the air compressor type, precautions must be taken to prevent contaminants from entering through the compressor intake. The compressor inlet must be located away from all sources of toxic contaminants including carbon monoxide, which is found in engine exhaust, and in any form of combustion. No vehicles should be allowed near the compressor intake. Contaminants can enter respiratory equipment through the compressor air inlet. This inlet must not be located near any exhaust system outlet, ventilation flue, or source of fumes or particles of any kind.

3.1.7 The preceding precautions also apply to portable compressors. In addition, in the case of engine-driven compressors, precautions must be taken to prevent engine exhaust gases from entering the air intake of the compressor. Compressor engine exhaust should be piped to a location safely downwind from the compressor air intake. Compressors vary in design and operation; therefore, it is important that users carefully read the manufacturer's operation and maintenance instructions before making modifications.

3.1.8 It is the owner's and user's responsibility to make sure the air supply is safe to breathe. The air supply includes the compressor, carbon monoxide alarms, and shutdown devices. An overheated compressor, or one that is in poor mechanical condition, may produce carbon monoxide. A carbon monoxide removal or conversion system may also be used to ensure breathing-air quality. The maximum allowable level of carbon monoxide in Grade D breathing air is 10 ppm (parts per million).

3.2 Air Pressure (Outlet Pressure)

3.2.1 Outlet pressure must be set to the pressure for which the respirator(s) is designed. Refer to the respirator owner's manual to find the approved pressure setting. All respirators connected to the filter must be approved to operate within the same pressure range.

⚠ WARNING

Failure to maintain the minimum pressure at the CPF filter outlet (point of attachment) may reduce air flow below the minimum flow required by OSHA. Reduced air flow may result in ingress of hazardous toxic dust, subjecting the user to immediate health and life threatening poisoning and subsequent respiratory disease.

4.0 SETUP

NOTE: The filter must be setup and placed in an area that permits monitoring of the outlet pressure, access to the drain, and removal of the cap for filter cartridge replacement.

4.1 Breathing-Air Connections

4.1.1 Filters can be configured for either left or right hand inlet. If it is more convenient to have the air inlet on the opposite side, swap the plug and inlet connector. This is usually required only with fixed installations.

4.1.2 The following instructions explain air connections using hose as the air supply line; hard piping may be used in place of hose. If the filter is hard-piped, place an isolation valve in the piping to enable depressurization for service.

4.1.3 Connect an air fitting that is compatible with the air supply hose, from an air source that meets OSHA requirements for respirable air, to either of the inlet ports on the side of the filter. The port's thread size is 1" NPT.

4.1.4 Connect a 3/4" ID or larger air hose, from a respirable air source to the inlet fitting. Maximum inlet pressure is 150 psi.

⚠ DANGER

Do not connect the CPF Filter to bottled air or any other air source that does not have a pressure-reducing valve that lowers pressure to maximum of 150 psi. Failure to comply with this warning will cause the CPF filter to explode under the high pressure of bottled air, and could cause severe injury or death.

5.0 ADJUSTMENTS

5.1 Outlet Pressure

5.1.1 Outlet pressure must be set to the pressure for which the respirator(s) is approved. The respirator's approved pressure may be found in the respirator's owner's manual. All respirators connected to a filter must be approved to operate within the same pressure range.

5.1.2 Adjust pressure with respirators attached and prior to donning the respirator.

5.1.3 To adjust pressure: pull the regulator knob out, and turn clockwise to increase pressure or counter-clockwise to decrease. Pressure will register on the gauge**.** Once operating pressure is set, push the knob in to lock.

6.0 MAINTENANCE

6.1 Draining

6.1.1 Drain moisture from the filter every four hours. More frequent draining may be required in humid environments. The drain petcock is located on the bottom of the filter body.

6.2 Filter Cartridge Replacement

6.2.1 Never attempt to clean the filter cartridge. Replace the filter cartridge at least every three months. Replace it sooner if:

- Users detect any objectionable odors.
- The filter begins to pass moisture through the outlets.
- The outlet pressure nears the lowest pressure for which the respirators are approved.

6.2.2 Before replacing the cartridge, always drain the filter through the petcock and leave the drain open. Shut off the compressed air supply to the filter. Make sure petcock no longer exhausts air and that the pressure gauge reads zero.

6.2.3 Remove the four nuts that hold cap in place and lift the cap. Install the new cartridge with the arrow pointing up. Inspect the cap gasket and o-ring and replace them as needed.

6.3 Cartridge Replacement Record

6.3.1 Use the chart in Figure 4 to maintain an accurate record of filter cartridge replacement dates. Replace the filter cartridge at least every three months with a genuine Clemco replacement filter cartridge.

Filter Cartridge Replacement Record	
Date originally Installed:	
Replacement Due Date	**Date of Replacement**

Figure 4

7.0 REPLACEMENT PARTS

Item	Description	Stock No.
(-)	CPF-80 air filter assembly	03527
(-)	CPF-20 air filter assembly	03578

7.1 Common Parts, Figure 5

Item	Description	Stock No.
1.	Cartridge, CPF filter	03547
2.	Cap screw, 3/8-NC x 1" hex head	03252
3.	Washer, 1-1/4″ OD	03310
4.	Nut, 3/8-NC	03311
5.	Petcock, 1/4"	01993
6.	Mounting bracket	03557
7.	Plug, 1" NPT	03532
8.	Washer, 1/2" SAE flat	03515
9.	Nut, 1/2-NC	03511
10.	Gasket, filter top	03559
11.	Washer, 3/8" lock	03318
12.	Stud, 1/2-NC x 2"	03545
13.	Handle strap	03623
14.	O-ring, cap	03561

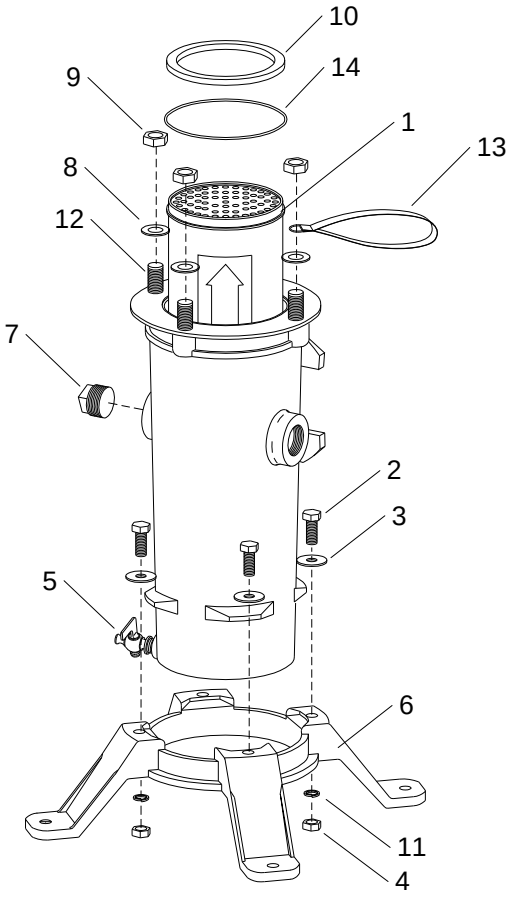


Figure 5

7.2 CPF-20 Cap, Figure 6

Item	Description	Stock No.
1.	Pressure gauge	00024
* 2.	Tee, 3/8" NPT male branch	22843
* 3.	Nipple, 3/8" NPT x 2" brass	03720
4.	Relief valve, 1/4" NPT	01909
* 5.	Pressure regulator, less gauge 3/8" NPT small body	03594
6.	Cap, CPF filter	03584
* 7.	Plug, 3/8" NPT brass	03536
(-)	Regulator kit, converts old style regulator to new style, includes items marked *	03582

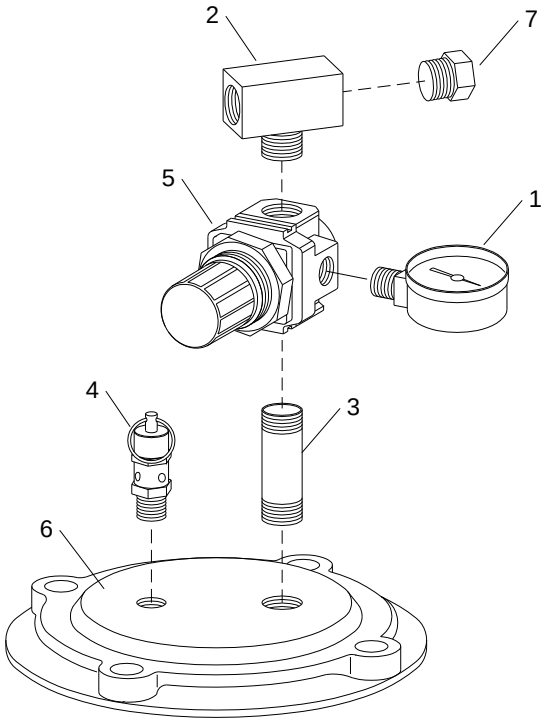


Figure 6

7.3 CPF-80 Cap, Figure 7

Item	Description	Stock No.
1.	Pressure gauge	00024
* 2.	Cross manifold, 3/8" NPT	22941
* 3.	Nipple, 3/8" NPT hex	03596
4.	Relief valve, 1/4" NPT	01909
* 5.	Pressure regulator, less gauge 3/8" NPT large body	22939
6.	Cap, CPF filter	03584
* 7.	Plug, 3/8" NPT brass	03536
(-)	Regulator kit, converts CPF-20 to CPF-80 includes items marked *	22937
(-)	Conversion kit, converts old style CPF-80 to new style. Includes items marked*, plus cap, cap o-ring, and handle strap. The kit does not include the relief valve item (4)or gauge item (1) Order separately if needed	23477

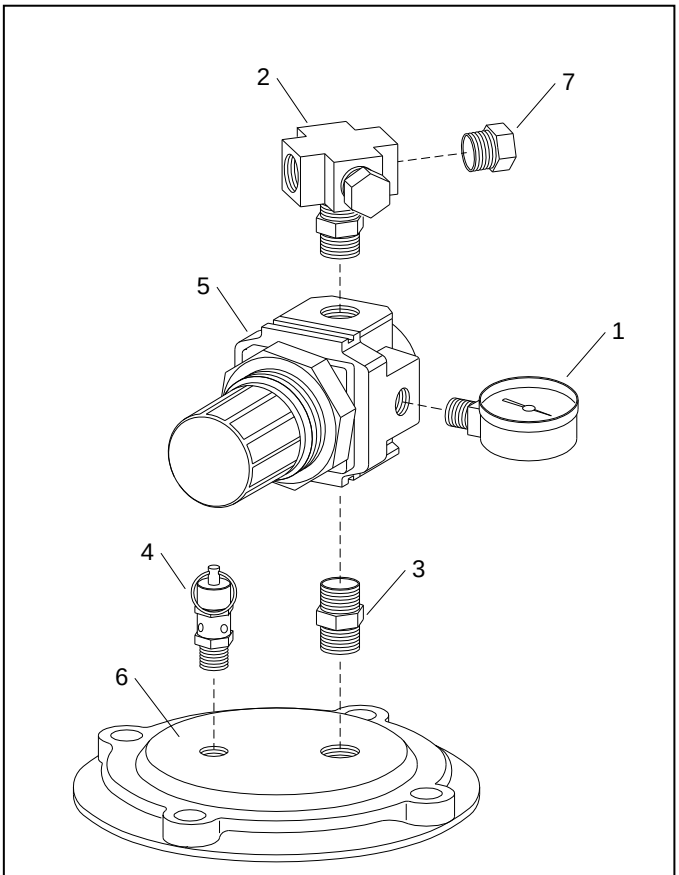


Figure 7