



INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

WELKER FILTER

MODELS

F-9

F-10

DRAWING NUMBERS

AD047B []

AD047BA

AD048B []

MANUAL NUMBER

IOM-213

REVISION

Rev. 0, 3/22/2017

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IMPORTANT SAFETY INFORMATION

READ ALL INSTRUCTIONS



Notes emphasize information and/or provide additional information to assist the user.



Caution messages appear before procedures that could result in damage to equipment if not observed.



Warning messages appear before procedures that could result in personal injury if not observed.

This manual is intended to be used as a basic installation and operation guide for the Welker Filters, F-9 and F-10. For comprehensive instructions, please refer to the IOM Manuals for each individual component. A list of relevant component IOM Manuals is provided in Appendix A of this manual.

The information in this manual has been carefully checked for accuracy and is intended to be used as a guide for the installation, operation, and maintenance of the Welker equipment described in this manual. Correct installation and operation, however, are the responsibility of the end user. Welker reserves the right to make changes to this manual and all products in order to improve performance and reliability.

BEFORE YOU BEGIN

Read these instructions completely and carefully.

IMPORTANT - Save these instructions for local inspector's use.

IMPORTANT - Observe all governing codes and ordinances.

Note to Installer - Leave these instructions with the end user.

Note to End User - Keep these instructions for future reference.

Installation of this Filter is of a mechanical nature.

Proper installation is the responsibility of the installer. Product failure due to improper installation is not covered under the warranty.

If you received a damaged Filter, please contact a Welker representative immediately.

Phone: 281.491.2331

Address: 13839 West Bellfort Street
Sugar Land, TX 77498

1.1 Introduction

We appreciate your business and your choice of Welker products. The installation, operation, and maintenance liability for this equipment becomes that of the purchaser at the time of receipt. Reading the applicable *Installation, Operation, and Maintenance (IOM) Manuals* prior to installation and operation of this equipment is required for a full understanding of its application and performance prior to use.*

If you have any questions, please call Welker at 1-281-491-2331.

**The following procedures have been written for use with standard Welker parts and equipment. Assemblies that have been modified may have additional requirements and specifications that are not listed in this manual.*

1.2 Product Description

The Welker *F-9* and *F-10* Filters are designed to filter particulates from gas or liquid products to protect downstream equipment.

As product flows through the filter, particulates are separated by the filter media, thus cleaning the liquid prior to use by downstream equipment.

Welker may custom design the F-9 and F-10 to suit the particular application and specifications of each customer.

1.3 Specifications



The specifications listed in this section are generalized for this equipment. Welker can modify the equipment according to your company's needs. **Please note that the specifications may vary depending on the customizations of your equipment.**

Table 1: F-9 Specifications

Products	Gases and Liquids Compatible With the Materials of Construction
Materials of Construction	316/316L Stainless Steel, PTFE, and Viton® Others Available
Maximum Allowable Operating Pressure	Standard: 4000 psig @ -20 °F to 100 °F (275 barg @ -28 °C to 37 °C) High Pressure: 6000 psig @ -20 °F to 100 °F (413 barg @ -28 °C to 37 °C)
Maximum Allowable Operating Temperature	Polyethylene Filter Element: 200 °F (93 °C) Stainless Steel Filter Element: 400 °F (204 °C)
Connections	¼" FNPT (Standard) ½" FNPT
Flow Rate	Up to 50 scfm
Nominal Filter Ratings	Polyethylene: 10 Microns or 35 Microns (Standard) Stainless Steel: 5 Microns, 25 Microns, or 65 Microns Others Available
Filter Media	Polyethylene (Gas Only) Stainless Steel
Option	Bypass

Table 2: F-10 Specifications

Products	Gases and Liquids Compatible With the Materials of Construction
Materials of Construction	316/316L Stainless Steel, PTFE, and Viton®
Maximum Allowable Operating Pressure	2000 psig @ -20 °F to 100 °F (137 barg @ -28 °C to 37 °C)
Maximum Allowable Operating Temperature	Polyethylene Filter Element: 200 °F (93 °C) Stainless Steel Filter Element: 400 °F (204 °C)
Connections	¼" FNPT (Standard) ½" FNPT ¾" FNPT 1" FNPT
Flow Rate	Up to 50 scfm
Nominal Filter Ratings	Polyethylene: 10 Microns or 35 Microns (Standard) Stainless Steel: 5 Microns, 25 Microns, or 65 Microns Others Available
Filter Media	Polyethylene (Gas Only) Stainless Steel Stainless Steel With Filter Paper
Option	Bypass

1.4 Equipment Diagrams

Figure 1: F-9 Diagram

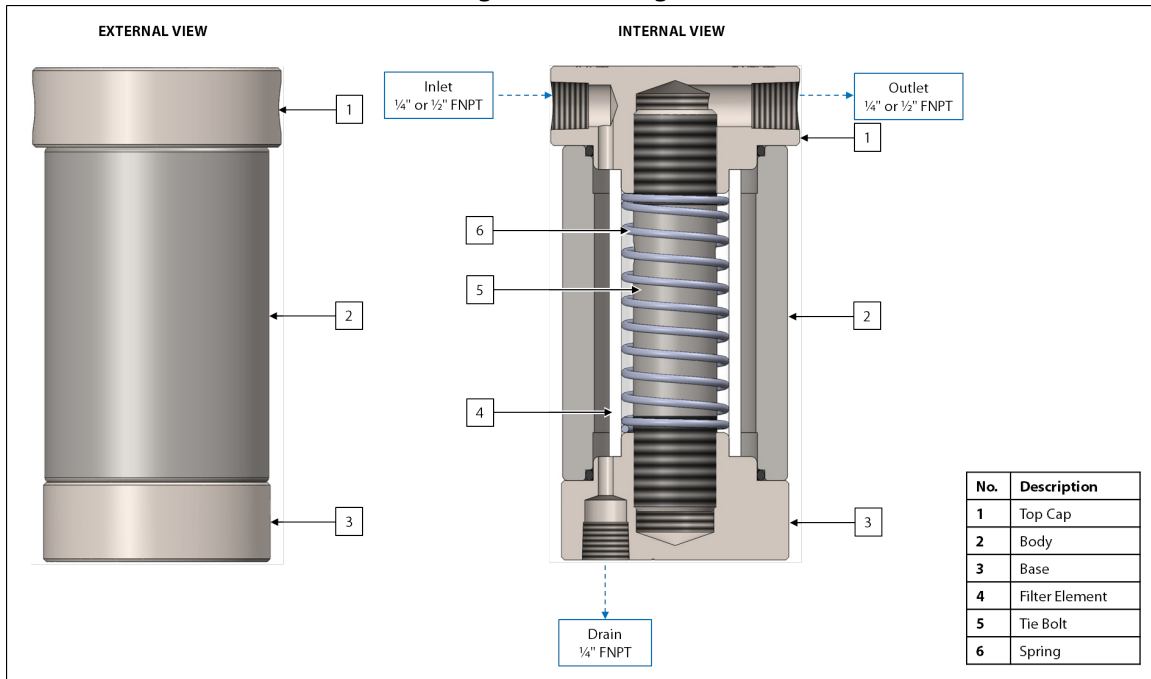
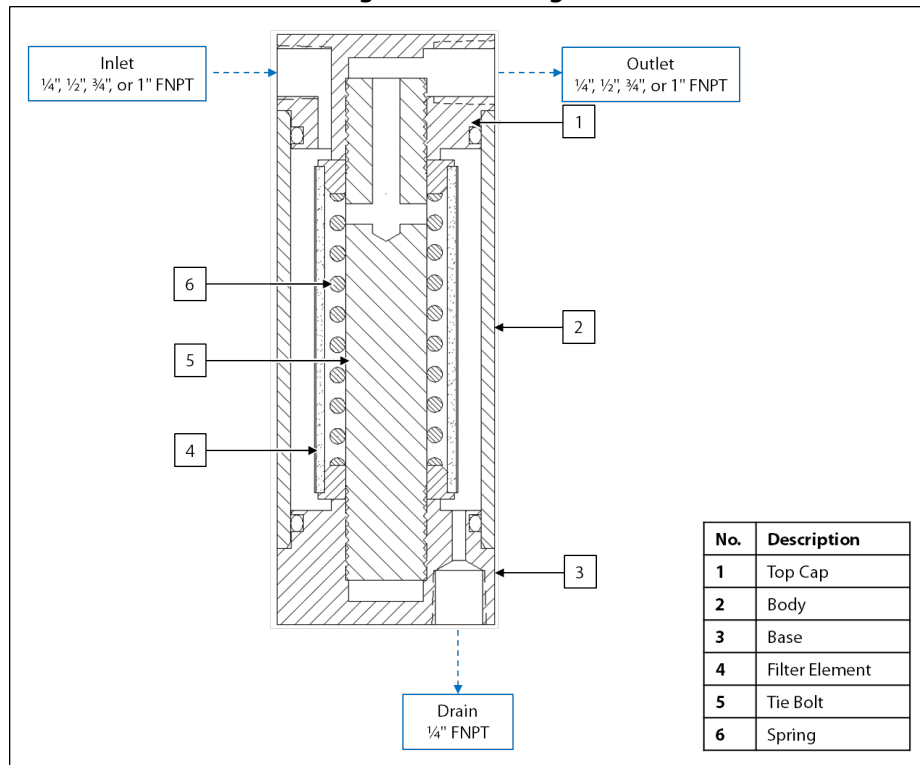


Figure 2: F-10 Diagram



2.1 Before You Begin



After unpacking the unit, check the equipment for compliance and any damage that may have occurred during shipment. Immediately contact a Welker representative if you received damaged equipment.



When sealing fittings with PTFE tape, refer to the proper sealing instructions for the brand used.

2.2 Installation and Operation

1. As necessary, mount the filter vertically to the desired location.
2. As necessary, plug or install a valve to the drain port (*Figure 1 or Figure 2*).
3. As necessary, connect from the drain valve to a safe drainage location.
4. Using customer-supplied tubing, connect from the supply source to the filter inlet (*Figure 1 or Figure 2*).
5. Using customer-supplied tubing, connect from the filter outlet to the equipment to be supplied with the filtered product (*Figure 1 or Figure 2*).
6. Slowly open the outlet valve on the supply source. Check for leaks and repair as necessary.
7. If a valve is installed between the filter and the equipment to be supplied with the filtered product, open that valve to allow the supply to reach the equipment.
8. The filter is now operational.

SECTION 3: MAINTENANCE

3.1 Before You Begin

1. **Welker recommends that the unit have standard maintenance under normal operating conditions:** for **gas applications** every six (6) months; and for **liquid applications** every twelve (12) months. In cases of severe service, dirty conditions, excessive usage, or other unique applications that may lead to excess wear on the unit, a more frequent maintenance schedule may be appropriate.
2. Prior to maintenance or disassembly of the unit, it is advisable to have a repair kit available for repairs of the system in case of unexpected wear or faulty seals.



New seals supplied in spare parts kits should be lightly lubricated before being installed to ease the installation of the seals and reduce the risk of damage when positioning them on parts. Wipe excess lubricant from the seals, as it may adversely affect analytical instrument results.



For sample-exposed seals, Welker recommends non-hydrocarbon-based lubricants, such as Krytox®. For non-sample-exposed seals, Welker recommends either non-hydrocarbon-based lubricants or silicone-based lubricants, such as Molykote® 111.



After the seals are installed, the outer diameter of shafts and inner diameter of cylinders may be lubricated to allow smooth transition of parts.

3. All maintenance and cleaning of the unit should be performed on a smooth, clean surface.
4. Welker recommends having the following tools available for maintenance. Please note that the exact tools required may vary by model.
 - a. Large Pliers
 - b. Pipe Wrench
 - c. Seal Pick

3.2 Maintenance

Figure 3: F-9 Maintenance Diagram

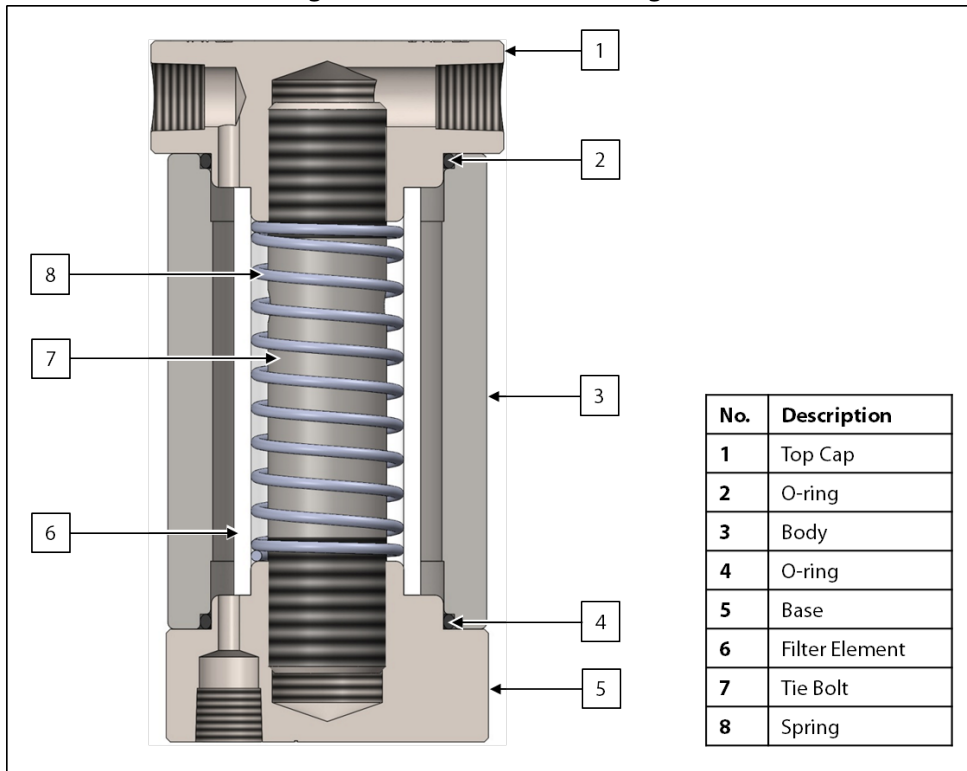
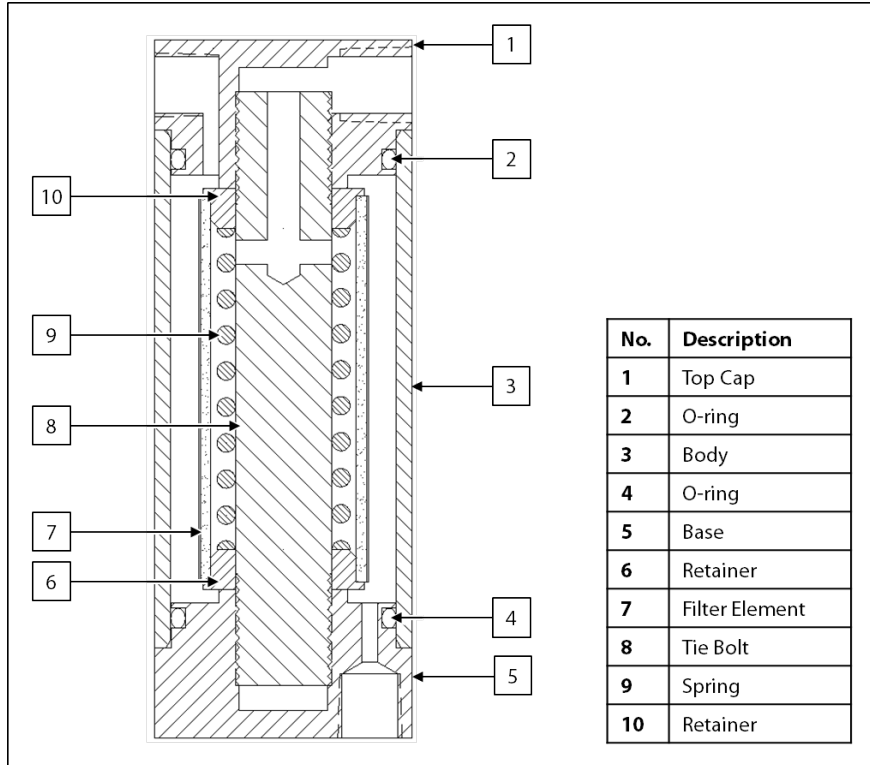


Figure 4: F-10 Maintenance Diagram



1. Isolate the filter. If the filter is not equipped with the optional bypass, close the outlet valve on the supply source and shut down any instrumentation connected to the filter. If the filter is equipped with the optional bypass, open the bypass valve, and then close the inlet and outlet valves on the filter.
2. Drain the filter to vent any pressure remaining in the body.
3. Unscrew the top cap and base from the body.
4. Remove the O-rings from the top cap and base.
5. Remove the retainers from the top and base.
6. Discard the filter element.
7. If applicable, remove the spring from the tie bolt and clean the spring.
8. Clean the top cap, base, and body.
9. Replace the O-rings on the top cap and base.
10. Inspect the retainers for damage or wear. Replace as necessary.
11. If applicable, return the spring to the tie bolt.
12. Install the base to the body.
13. If the filter is equipped with a polyethylene filter element, install a replacement filter element. If the F-9 is equipped with a stainless steel filter element, clean the filter element with an appropriate solvent and then install it to the filter.
14. Install the top cap to the body.
15. Maintenance is now complete. See *Section 2.2, Installation and Operation*, for instructions on returning the filter to operation.

APPENDIX A: REFERENCED OR ATTACHED DOCUMENTS

Welker *Installation, Operation, and Maintenance (IOM) Manuals* suggested for use with this unit:

- None

Other *Installation, Operation, and Maintenance (IOM) Manuals* suggested for use with this unit:

- None

Welker drawings and schematics suggested for use with this unit:

- Assembly Drawing: AD047B[] (Standard F-9)
- Assembly Drawing: AD047BA (High Pressure F-9)
- Assembly Drawing: AD048B[] (F-10)

