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SAAF Front Access Housings with SAAF Cassette Gas Phase Chemical Filters

Installation, Operation and Maintenance Instructions

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1.0 Introduction

1.1 About this Document

This document contains the information necessary to properly receive, assemble, install, operate, and maintain the AAF Front Access Housing (FAH) filter bank and filters. The purchaser, installer, and operator of the filter system **MUST** read and comply with this document in its entirety prior to installation of the equipment and its operation. Failure to comply with the requirements of this manual may void the product warranty.

CAUTION

These instructions are specific to the AAF Front Access Housing (FAH) filter bank and filters. All ancillary tasks including, but not limited to, electrical and mechanical work, equipment handling, and safety procedures must be performed in accordance with industry accepted practice and all relevant local, state, and federal government codes, laws, and policies.

1.2 Packaging and Shipping, Receiving and Inspection, Handling and Storage

1.2.1 Packaging and Shipping: Unless otherwise defined in the purchase order and agreed by AAF, the FAH and filters are packaged for domestic transit and shipped FOB the AAF factory. The method of shipment will be as specified in the customer's purchase order to AAF.

1.2.2 Receiving and Inspection: Obtain a copy of the purchase order, the product drawing that was submitted by AAF in association with the order, and a copy of the bill of lading, along with any other shipping papers. Upon receipt of the equipment, or any part thereof, these documents shall be used to ensure that the correct product has been received.

For maximum protection, complete the following steps upon receipt of the FAH filter bank and filters:

- Inspect the shipment and all associated documentation. Notify the carrier immediately if there is any visible damage to the packaging or the equipment, or a discrepancy in the shipping papers and, if necessary, file an immediate claim with the carrier against such damage or discrepancy.
- Confirm that the equipment received agrees with the contents of the shipping papers.
- Confirm that the shipping documents agree with the purchase order. Refer to the product drawing submitted for the order as necessary.
- If it is determined that any equipment ordered on the purchase order has not been delivered and is not accounted for in the shipping papers contact AAF International immediately by calling 1-800-477-1214. Reference the AAF control number which will be listed on the shipping papers.

Each shipment may include:

- Individually packaged Front Access Housings.
- Packaged particulate filters.
- Packaged gas phase chemical filter cassettes.

Note that the housings and the particulate and gas phase filters may ship from different locations and be received at different times.

1.2.3 Handling and Storage: Following receipt, inspection, and acceptance of the equipment, and prior to assembly and installation, the FAH and the particulate and gas phase filters shall be handled with great care. The components shall be retained and stored in their protective packaging until immediately prior to installation. Care shall be taken to ensure that the packages are not dropped or subjected to any impact loads.

At all times the equipment shall be protected from exposure to weather. The equipment shall be stored in a clean, dry, temperature controlled environment. All items shall be stored on pallets so that they are elevated above grade. The Front Access Housings and particulate and gas phase filters shall not be stacked more than three (3) cartons high to prevent crushing. Only FAH shall be stacked on FAH, particulate filters on particulate filters, and gas phase filters on gas phase filters. The gas phase filters ship inside a carton enclosed in transparent protective plastic. Under no circumstances shall the filters be removed from this plastic protection until immediately prior to installation.

Filter products shall not be stored in areas where they may become contaminated by chemicals, either acids or alkalis, in liquid, vapor, or gaseous form.

1.3 Product Descriptions

1.3.1 Front Access Housing (FAH): Each FAH will be received individually in a carton. Depending on the quantity supplied, these cartons may be palletized and banded together. The FAH is supplied in three styles: Type MD, Type HD, or Type CG (as shown at top of page 3) and will be the full size 2' high x 2' wide housings shown, or depending on the size of the filter bank required, may include half size housings. Half size housings are available in half height (1' high x 2' wide) or half width (2' high x 1' wide) sizes, except for the Type CG which is only provided in the half width size. Half size housings hold half the number of gas phase cassettes as full size housings and use half size particulate filters.

Any particular filter bank will be assembled using only one type of housing (Type MD, Type HD or Type CG). Housing types will never be mixed in a single filter bank.

1.3.2 Gas Phase Chemical Filter Cassettes: Gas phase filter cassettes are shipped in cartons and plastic bags. The carton shown contains a single 6' high x 24' wide x 18' deep Type MD cassette which is supplied as two (2) 6' high x 12' wide x 18' deep half cassettes.





Model FAH-202-2P-MD housing holds four (4) MD cassettes.



Model FAH-202-2P-HD housing holds two (2) HD cassettes.



Model FAH-202-2P-CG housing holds two (2) CG cassettes.

Leaving air face of the housings is shown.

The three (3) types of gas phase chemical filter cassettes that can be supplied are as follows:



6 high x 24 wide x 18 deep Type MD cassette ships in two halves.



24 high x 12 wide x 12 deep Type CG cassette ships in one piece.

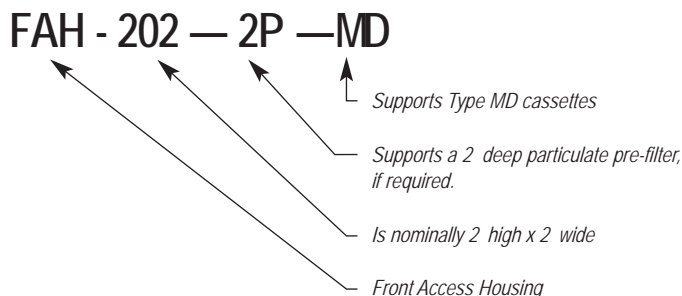


12 high x 24 wide x 12 deep Type HD cassette ships in two halves.

1.3.3 Particulate filters: Particulate filters will typically be AAF PerfectPleat™ pleated filters. Depending on the size of the filter frame ordered 24 high x 24 wide x 2 deep full size filters, 24 high x 12 wide x 2 deep, or 12 high x 24 wide x 2 deep half size filters may be supplied. PerfectPleat 2 deep filters are packaged 12 to a carton.

1.4 Product Model Designations

The FAH model is designated as follows:



FAH model numbers available are:

Type MD	Type HD	Type CG
FAH-202-2P-MD	FAH-202-2P-HD	FAH-202-2P-CG
FAH-102-2P-MD	FAH-102-2P-HD	FAH-201-2P-CG
FAH-201-2P-MD	FAH-201-2P-HD	

The assembled filter bank model number is typically designated as follows:

FAH - 608 - 2P - MD

In this case the - 608 - indicates a filter bank that is nominally 6 high x 8 wide.

1.5 Product Drawings

Details of individual Front Access Housings are shown on the following AAF drawings:

FAH	AAF Drawing Number
FAH-202-2P-MD	114D-3026127
FAH-102-2P-MD	114D-3027273
FAH-201-2P-MD	114D-3027281
FAH-202-2P-HD	114D-3027869
FAH-102-2P-HD	114D-3027901
FAH-201-2P-HD	114D-3027877
FAH-202-2P-CG	114D-3027539
FAH-201-2P-CG	114D-3027513

Details of the assembled filter banks are shown on the following AAF drawings:

FAH Filter Bank	AAF Drawing Number
FAH-XXX-2P-MD	114D-3027919
FAH-XXX-2P-HD	114D-3028271
FAH-XXX-2P-CG	114D-3027919

Copies of the appropriate drawings will have been supplied as part of the AAF submittals in response to the purchase order. Obtain and review these drawings before proceeding with the assembly and installation of the filter bank. The assembled filter bank drawings include the following details for filter bank sizes 102 (1 high x 2 wide) through 812 (8 high x 12 wide):

- Overall filter bank dimensions
- Shipping weights
- Operating weights
- Sizes and quantities of Front Access Housings required
- Sizes and quantities of filters required
- Details of the gas phase chemical media supplied
- Details of the particulate filters supplied
- Pressure losses across the filter bank at nominal airflow design velocities
- Installation and assembly details

1.6 Assembly — General Comments

As indicated previously, the individual components that will comprise the filter bank will ship separately and will be required to be assembled and installed on site. Refer to Section 3.0, Installation Instructions, of this manual for further detailed instructions. Consult with an experienced installer to obtain an accurate estimate of the time, personnel, and equipment resources and tools that will be required to complete the assembly and installation of the filter bank. Site assembly will be limited to moving and lifting individual components with a maximum weight of approximately 55 pounds (25 kg), riveting or screwing components together, and caulking.

Completion of the following preparations and provision of the following items will be the responsibility of the installer or others:

- Site preparation
- Stainless steel rivets, as required
- Caulk, as required
- Sheet metal, or other duct, as required
- Sheet metal perimeter blank-off panels, as required

These items will not be supplied by AAF unless noted specifically in the AAF quotation and in the accepted customer purchase order.

NO WELDING WILL BE REQUIRED.

In general, assembly of the filter bank will consist of the following:

- Preparation of the installation location
- Transportation of all components to the installation location
- Unpacking the Front Access Housings
- Assembling and installing the Front Access Housings
- Sealing the filter bank perimeter to prevent by-pass of unfiltered air
- Unpacking gas phase chemical filter cassettes
- Installing gas phase chemical filter cassettes
- Unpacking particulate filters
- Installing particulate filters
- Cleaning the site
- Start-up and commission of the filter system

1.7 Related System Equipment

Ventilation systems will often include other equipment including but not limited to:

- Fan(s)
- Dampers
- Weather louvers
- Air tempering equipment
- Other filter banks
- Instrumentation
- Electronic instrumentation and controls
- Ductwork

Neither the interface of these items with the filter system supplied by AAF, nor the installation, operation and maintenance of these items is covered in this manual.

Whether these items are supplied by AAF or by others, consult the documentation specific to these products for appropriate instructions.

2.0 Principles of Operation

An understanding of the design and operating principle of the Front Access Housings with Gas Phase Chemical Filters is useful for effective installation, operation and maintenance. The system is intended to remove gaseous contaminants from intake, re-circulated, or discharged ventilation air. Examples of such contaminants may be nuisance odors and smells that may cause domestic and neighborhood discomfort and reduce workplace productivity, or harmful gases that may cause damage to health, plant and product in industrial applications. The heart of the system is the AAF SAAF Cassette. This is a high impact plastic frame that supports various types of dry, granular, chemical media between perforated screens that allow air to move through the filter. The SAAF Cassette is designed to support the chemical media in a V-bank configuration of media beds that maximizes the media exposed to the air stream, reduces the air stream velocity through the media bed, maximizes energy efficiency, and maximizes the removal of contaminants and the life of the product. The method of contaminant removal is through a combination of the physical property of adsorption and the chemical process of oxidation. AAF offers a variety of impregnated and un-impregnated dry granular media to handle a wide range of contamination problems. For more information on AAF's gas phase air cleaning products contact your AAF representative.

The AAF Front Access Housing (FAH) is one of the various framing and support systems designed to support the SAAF Cassette in the air stream and to allow easy installation, operation and maintenance of the system.

3.0 Installation Instructions

Consult the product drawing(s) submitted on this order before proceeding.

3.1 Space Requirements: A minimum of 24' clear space must be available at the rear, or downstream side, of the filter bank and 36' clear space at the front, or upstream side, of the filter bank for access to perform routine maintenance. Additional space may be required for inlet and outlet ductwork.

3.2 Foundations and Anchoring: The foundation must be designed to be adequate to support the filter bank operating weight, and any seismic, live or other loads (if any), with a sufficient factor of safety as determined to comply with the requirements of all applicable governing codes, standards, and laws. Ensure that the foundation surface is level and smooth before proceeding. The filter frame is designed for operation in indoor locations without any unusual loading condition, other than the static loading from the filters and the pressure loss across the filter bank. For this reason, the lower housings are not intended to be anchored to the foundation. If anchors are used the installer shall ensure that the anchor heads do not interfere with the installation of the lowest tier of gas phase filter cassettes. If the frame bank is required to withstand unusual or dynamic loads, then special anchoring arrangements featuring removable supports may be required.

3.3 Typical FAH Details



FAH-202-2P-MD



FAH-202-2P-HD



FAH-202-2P-CG

Entering air face of the housings is shown.



Locking handle support tab ships loose with the Type CG housing.

Each individual FAH is specifically designed to accommodate and securely seal AAF's gas phase chemical filter cassettes. Each housing incorporates a unique, patent pending, filter sealing system to ensure that the contaminated air passes through the filter and does not by-pass the system. Each FAH is supplied complete with four (4) sealing and locking channels as illustrated. The locking handle support tabs are shipped installed on the FAH-(202)(201)(102)-2P-MD and FAH-(202)(201)-2P-HD housings, but ship loose with the FAH-(202)(201)-2P-CG and the FAH-102-2P-HD housings for installation after the gas phase filters have been inserted into the housing (see illustration bottom page 6).

3.4 General Filter Bank Erection Procedure

CAUTION

The maximum number of Front Access Housings that may be stacked vertically without intermediate supports is four high. There is no limit to the width of a built-up filter bank.

After removing the Front Access Housings from the cartons, prepare to arrange and stack the individual housings to form the filter bank shown on the AAF submittal drawing and in Figure 1 below.

To ensure that the erected frame is properly sealed to prevent by-pass of air around the filters, it is important to comply fully with the following:

3.4.1 Support Surface: The support surface under the base of the frame shall be level, smooth, clean, and dry. The location shall be protected from the weather and shall not be subject to wetting or flooding.

3.4.2 Caulking and Sealing: Caulk generously beneath, between, and around the Front Access Housings as shown in Figures 1 and 3. Locate the lines of caulk as shown and as follows:

Two (2) unbroken transverse lines between horizontal and vertical rows, across the entire width of the filter bank at each level beginning at the support surface.

One orthogonal line of caulk across the full depth of the frame at any point where the side panel of the FAH joins to the top or bottom of the housing forming a corner that connects to a similar corner on another housing. Such joints will occur at the connections between the support base and the lowest tier of housings, any two perimeter housings, or any four internal housings.

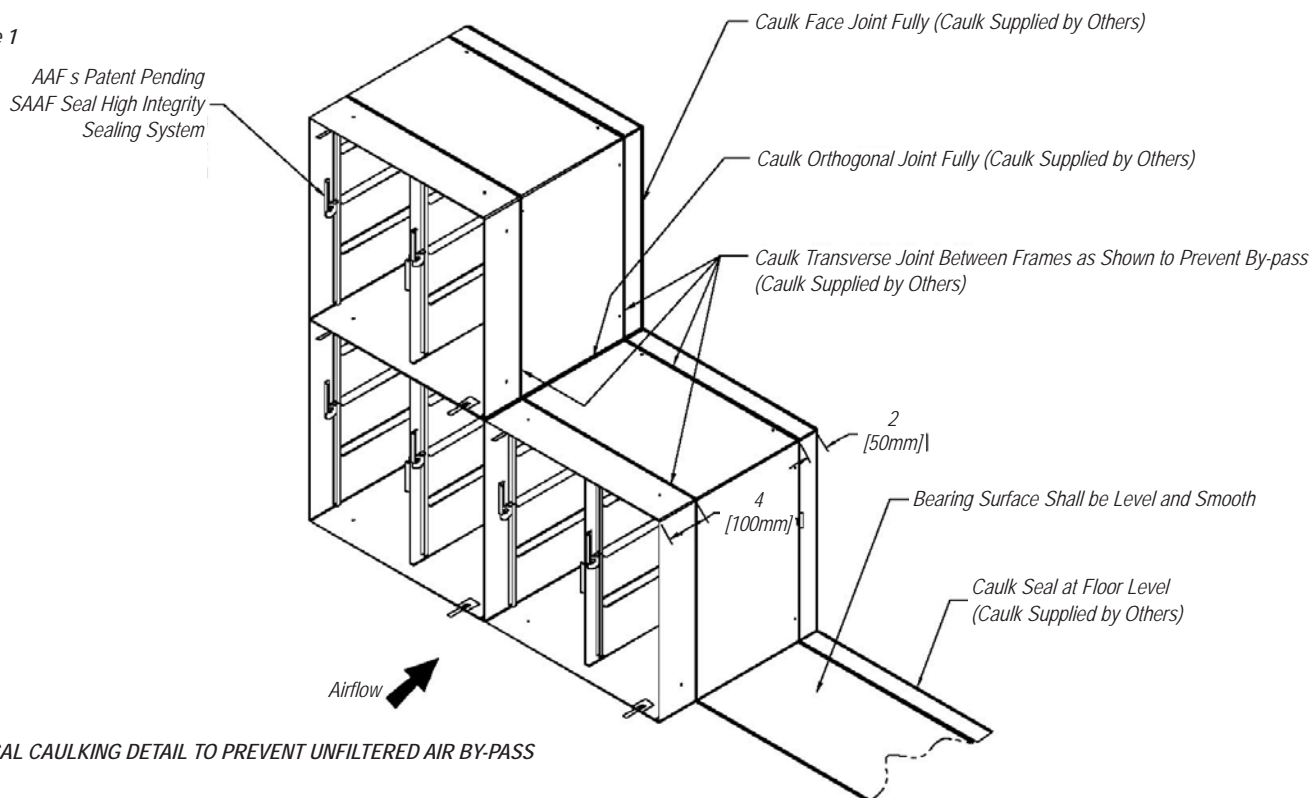
Caulk all seams on the face of the filter bank on the air leaving side.

Provision of the caulk will be the responsibility of the installer or others. This item will not be supplied by AAF unless noted specifically in the AAF quotation and in the accepted customer purchase order. The caulk to be used shall be a long life, flexible, non-drying caulking material. The caulk supplier shall ensure that the caulk shall meet the customer specifications for the application in which it is being used.

CAUTION

Many installations prohibit the use of certain caulking materials such as Silicone. The use of materials containing VOCs should also be avoided as they may have a negative effect on the life of the gas phase filters.

Figure 1



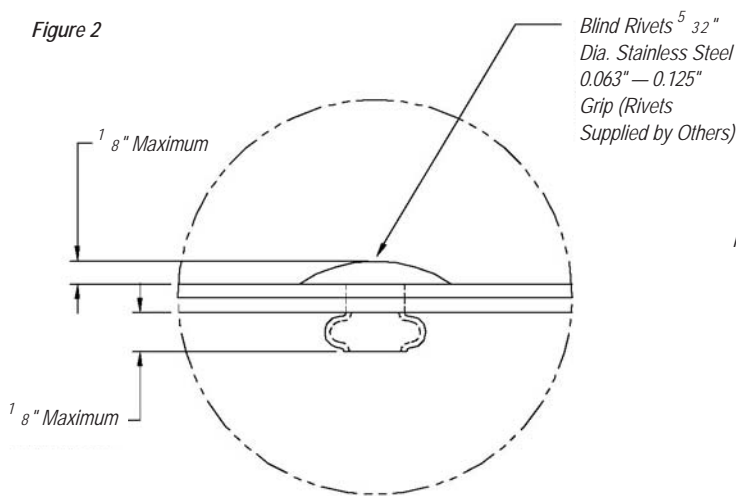
TYPICAL CAULKING DETAIL TO PREVENT UNFILTERED AIR BY-PASS

3.4.3 Connecting the Front Access Housings: The individual housings shall be riveted together using the holes provided, as shown in Figure 2. Four (4) rivet holes are provided on each side of the housing and on the top and bottom. When connecting to adjacent housings all rivet holes must be used.

Provision of the rivets will be the responsibility of the installer or others. This item will not be supplied by AAF unless noted specifically in the AAF quotation and in the accepted customer purchase order.

It is recommended that stainless steel rivets be used. Check the first frame installations to ensure that the installed rivets do not interfere with the installation of the chemical filter cassettes.

Figure 2



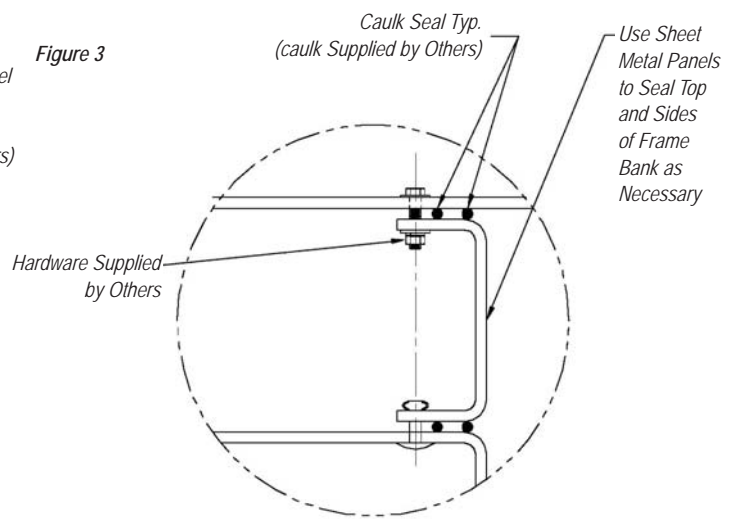
Typical Rivet Detail

3.4.4 Sealing the Perimeter of the Filter Bank: The perimeter of the filter bank shall be sealed to prevent the by-pass of air around the filter bank. Suggestions for accomplishing this are shown in Figure 3.

Provision of the ductwork and/or sheet metal panels will be the responsibility of the installer or others. This item will not be supplied by AAF unless noted specifically in the AAF quotation and in the accepted customer purchase order.

Pay particular attention to caulking around the perimeter to achieve a complete seal. Detailed caulking instructions are provided in paragraph 3.4.2.

Figure 3



Suggested Ductwork Connection Detail



3.5 Preparation for Filter Installation: At this time a filter bank similar to that shown (lower left) will have been erected.

In order to maximize the life of the gas phase chemical filters and the particulate filters, it is recommended that filter installation be the final installation task before start-up and commissioning of the system. In preparation for filter installation, it is recommended that the following be completed:

- Completely clean the system to remove all construction debris and dirt, sweep and vacuum to remove visible dirt.
- Damp wipe all surfaces to remove dust.
- Finalize and complete all caulking.
- Finalize and complete all painting.

It is recommended that all cleaning materials and paints used in the system be free of solvents. If this is unavoidable, it is recommended that sufficient time be allowed for complete drying to occur and for the VOCs to disperse before installing the filters. This process can be accelerated by blowing down the system; i.e., operating the fan without the filters to ventilate the system. It is recommended that a blanket style construction filter be installed at the inlet to the system to prevent construction dust from being drawn into the system. Consult

with your AAF representative to obtain an appropriate product. Also, before blowing down the system, check that it is safe to operate the fan without the pressure load of the gas phase chemical filters. Consult the AAF submittal drawing for pressure information.

3.6 Gas Phase Chemical Filter Installation: The following instructions are specific to the installation of the MD gas phase chemical filter cassettes into the appropriate FAH-XXX-2P-MD filter frame. Unless specifically mentioned otherwise, the procedure for installing the HD and CG cassettes will be exactly the same.

3.6.1 Check the Gaskets in the Face of the Front Access

Housings: Before proceeding with installation, inspect the gaskets located in the face of the housings to ensure that they have not been damaged or become loose during installation and cleaning. Correct any problems.

3.6.2 Prefilter Locking Tabs:

Ensure that the pre-filter locking tabs are in the open position before proceeding. See the detail at right.



3.6.3 Preparing the Cassette for Installation: Remove the cassette from its carton and plastic bag. You may notice that each cassette or half cassette is accompanied by a plastic bag containing loose gaskets (see right). These are supplied for use when the cassette is being installed into an AAF Side Access Housing (SAH) and are not required for installation into the FAH frame bank. DISCARD THESE GASKETS.

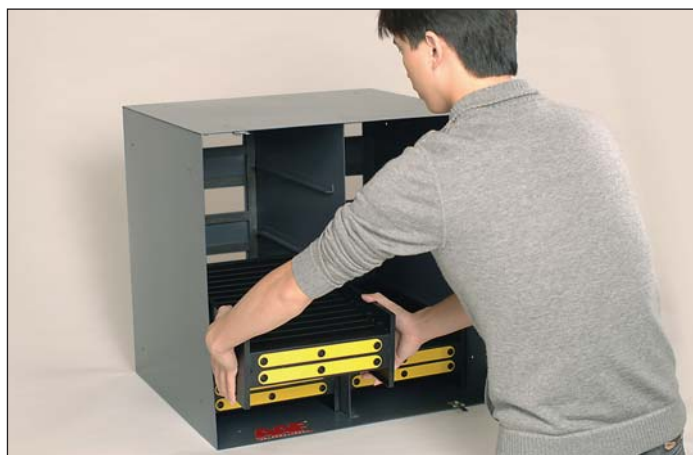


3.6.4 Handling of the Cassette: The AAF SAAF Cassette is designed to be sturdy and to support a significant weight of chemical media. However, it should not be handled roughly. The cassette should always be lifted with two hands, one beneath each side panel as shown in the following installation pictures. The cassette should never be lifted, supported, or carried by a single side panel.

3.6.5 Installation of the Cassette in the FAH: Install the cassettes as shown in the sequence below starting with the bottom cassette. The bottom cassette rests on the lower panel of the FAH housing. Subsequent cassettes are supported on tracks. Slide each half-cassette into the FAH and push it firmly against the gasket that is located in the face of the housing. Repeat this process until all of the tracks in the FAH have been filled.



Step 1: Insert the filter into the FAH.



Step 2: Slide the filter into the FAH.



Step 3: Push to engage the gasket in the face of the FAH.

3.6.6 Preparing the FAH-202-2P-CG, FAH-201-2P-CG, and FAH-102-2P-HD Housings for Sealing and Locking of the Cassettes:

The FAH-202-2P-CG and FAH-201-2P-CG housings support a single cassette in each 2' high x 1' wide cavity, while the FAH-102-2P-HD housing supports a single half cassette in each 1' high x 1' wide cavity. If installed prior to cassette installation, the locking handle support tabs, which are center-mounted on the vertical panels, would interfere with the installation of the cassette. For this reason they are shipped loose with the FAH for installation after the cassette has been installed. Locate the locking handle support tabs and insert them into the left hand, right hand, and center panels of the FAH, as shown in the illustration below. Adjacent housings will share a set of tabs.

Note that the locking handle support tabs are shipped installed on MD and most HD housings.



3.6.7 Sealing and Locking the Cassettes in Place: The patent pending AAF SAAF Seal system ensures that the gas phase chemical filter cassettes are properly sealed into position against the face gasket to prevent the by-pass of contaminated air around the filter. The system is designed to be completely effective and to be simple to operate. Follow the sequence shown in the accompanying illustrations and as described below:



Step 1: Take one cassette sealing and locking channel.



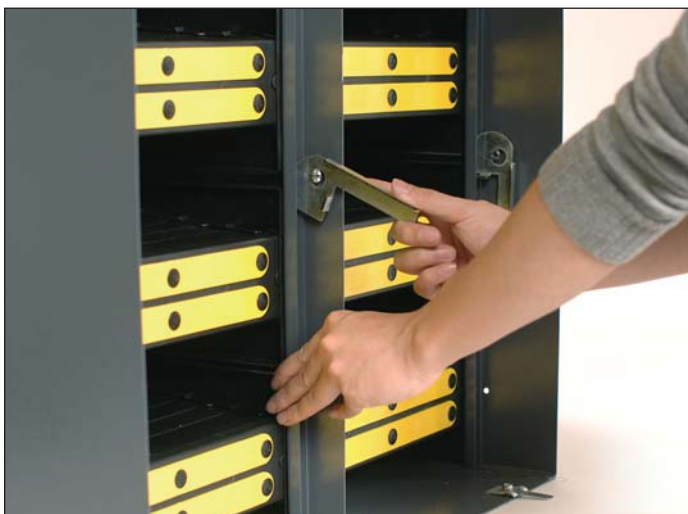
Step 2: Locate the channel against the left side of the center vertical cassette support panel, inside the locking handle support tab, with the channel legs facing away from the cassette.



Step 3: Take one filter seal locking handle.



Step 4: Insert the filter seal locking handle into the locking channel so that the locking handle support tab protrudes completely through the hole in the locking handle.



Step 5: Making sure that the locking handle is hooked behind the front flange of the locking handle support tab and cannot slip off, rotate the locking handle downwards so that the face of the handle engages the web of the channel forcing it against the cassettes and pushing them into the housing to compress the face gasket.



Step 6: Rotate the locking handle until it is completely seated with the handle in the vertical position. The locking handle is self positioning and cannot be over-rotated.



Step 7: Now, repeat the process on the right hand side of the center vertical cassette support panel. The handle on the right hand side of the panel rotates upwards.



Step 8: Again, repeat the process on the left and right hand side panels of the FAH housing until each row of half-cassettes is locked in position at both sides. As before, the handle on the left hand side of the panel always rotates downwards and the handle on the right hand side of the panel always rotates upwards.

Repeat the process of gas phase cassette installation and sealing until all housings are filled with sealed cassettes as shown below.



Step 1: Insert the prefilter into the FAH.



Step 2: Engage the two spring loaded prefilter holding tabs.



Step 3: The installed prefilter.

3.7 Prefilter Installation: The prefilter is offered as an option with the FAH. It is normally not necessary to include the prefilter if the system includes a separate bank of inlet filters. Where a separate inlet filter system is not provided, it is highly recommended that prefilters be used to prevent the build up of lint and dust on the face of the gas phase chemical filters.

Install the prefilters as shown in the sequence at right. Each individual FAH can accommodate one prefilter. A standard 24 x 24 ASHRAE style filter will fit into the size 202 housing and a standard 24 x 12 ASHRAE style filter will fit into the size 201 and 102 housings. The Front Access Housings are designed to accept a 2" deep pre-filter only. For best results AAF recommends the use of the MERV 7 rated PerfectPleat.

Place the prefilter into the open face of the FAH with the pleats arranged vertically. However, it may be necessary when installing some half size filters to arrange the pleats horizontally.

Repeat the process of prefilter installation until all housings are filled with latched prefilters as shown below.



3.8 Pressure Gauge: It is recommended that a pressure gauge be installed across the filter bank to indicate when the prefilter needs to be replaced. The pressure gauge will register the pressure differential across the bank. As the prefilter loads with dirt the resistance to the airflow, and consequently, the pressure across the filter will increase. The pressure across the gas phase chemical filter will remain constant since this filter collects gas molecules and not particulate. If a pressure gauge has not been included in the customer's purchase order, discuss the pressure gauge options with your AAF representative. If a pressure gauge has been included in the order, refer to the specific installation instructions supplied with the gauge.

3.9 After-filters: Some gas phase chemical filter media may discharge a small plume of dust on fan start-up when the filter system is first operated. This may result in dust being deposited on the downstream side of the filter bank. There are generally two ways to deal with this:

- In industrial applications that are not particularly sensitive to small amounts of dust, this initial plume is allowed to blow off and the deposited dust is swept up or vacuumed.

- In applications that are sensitive to dust, it is recommended that an after-filter similar to the prefilter discussed above be supplied on the downstream side of the filter bank. This will require an additional frame bank to be mounted in the duct on the downstream side of the gas phase chemical filters. In addition to the MERV 7 after-filter a higher rated air filter may also be installed to provide a significantly improved level of air cleanliness in the space to be ventilated. Many options are available up to HEPA and ULPA filter systems. If an after-filter or higher efficiency final filter with appropriate support frames have not been included in the customer's purchase order, discuss the additional filter options with your AAF representative. If any of these items have been included in the order, refer to the specific installation instructions supplied with those items.

4.0 Start-up Instructions

When the fan system is started up, ensure that the airflow volume is controlled so that the actual airflow velocity across the filter bank does not exceed the rated face velocity shown on the AAF submittal drawing. If there is any doubt about the required face velocity the default maximum velocities shall be as follows:

- MD and CG cassettes: 500 feet per minute
- HD cassettes: 250 feet per minute

Immediately on start-up examine the filter system for any apparent air leaks or other anomalies. Air leaks may be detected by noise or by use of a synthetic smoke puffing device at the internal and perimeter joints and seams of the filter bank installation. Correct or repair any discrepancies, as necessary. Repeat this examination after 24 hours of operation and again after one week of operation.

Monitor the pressure drop across the filter bank to ensure that the filters are operating within the pressure range expected and to ensure that the pressure drop is not too high. Consult the AAF drawing for the expected clean filter pressure differentials.

5.0 Maintenance

5.1 Prefilter: If a prefilter has been included as part of the system, record the pressure drop weekly to obtain the status of the particulate filter. A normal particulate prefilter can be expected to last for between 2 and 3 months before reaching its final recommended pressure drop (see the AAF drawings for details). However, under heavier or lighter dust loading conditions this may vary. At an airflow velocity of 500 feet per minute the 2" deep AAF PerfectPleat filter can be expected to have an initial pressure drop in the range of 0.35" water gauge. The recommended final pressure drop is 1.0" water gauge. This means that when a pressure drop increase of 0.65" water gauge has been recorded it is time to change the prefilter.

5.2 After-filter: If an after-filter has been installed in the system to collect an initial plume of dust that might be blown from the gas phase chemical filters, it can eventually be removed from the system to reduce the energy required to operate the system. Monitor the pressure drop across this filter, and when the pressure ceases to increase it is safe to remove this filter from the system. This should typically be no longer than after 40 hours of operation. If after-filters still have significant life remaining at the time of removal (based on the pressure drop reading) they should be retained for re-use as after-filters following the change-out of the chemical filters or be used as replacements for the prefilters.

5.3 Gas Phase Filter Monitoring: A discussion of sophisticated gas phase filter monitoring is beyond the scope of this manual. At its most simple, when the filter is used to remove nuisance odors, the time to change out the gas phase chemical media cassette is when the odor begins to be regularly detected on the clean side of the filter bank. In more stringent applications where the system is supplied to protect health and / or high value plant and product, active real time electronic and passive coupon corrosion monitoring systems are available to determine the performance of the system. The remaining life of the media in the SAAF Cassette can be determined by taking a sample of media and returning it to AAF for analysis. Consult with your AAF representative regarding active and passive monitoring systems and media sampling for remaining life analysis.

5.4 Removal and Replacement of Particulate and Gas Phase Chemical Filters: Removal of filters will be the reverse of the installation process described earlier in this manual. Filter replacement will be carried out exactly the same as at initial installation.

5.5 Disposal of Used Filters: Used chemical filters and particulate filters shall be packaged and disposed of in full accordance with all required and applicable laws and regulations. Consult with local environmental control authorities such as local, state, and federal EPA & OSHA authorities for direction. Material Safety Data Sheets (MSDS) are available on all products supplied by AAF. Contact your AAF representative for further information.

5.6 Gaskets: The proper maintenance of the face gaskets on the leaving air face of each FAH is critical to the performance of the system. Check the gaskets carefully whenever the gas phase chemical filters are replaced. If gaskets are worn, frayed, or compressed to the point where they do not recover when the filter seal is released they should be replaced. Check the seal between the gas phase chemical filter cassette and the FAH on the air leaving face of the housings whenever new SAAF Cassettes are installed.

5.7 General System Maintenance: Ducts, filter support frames, access doors, and other system infrastructure should be checked at least every 6 months. Examine all components for the following:

5.7.1 Cleanliness: Sweep and vacuum all standing dust or dirt in the system and damp wipe all surfaces. Be mindful of the impact of cleaning solvents on the performance and life of the gas phase chemical filters and take appropriate precautions to protect the system.

5.7.2 Water: The system should be completely dry at all times. The presence of standing water, condensation, or dampness is detrimental to the performance and life of the system. Determine and remove the cause for the presence of water in the system, dry the system, and examine all components for the presence of mold and other biological growth. Remove all contamination, clean and sterilize as necessary.

5.7.3 Filter Bank Integrity: Ensure that all filter housings contain the appropriate filter elements, both particulate and gas phase, and that these elements are correctly installed. Check for missing or improperly installed latches and review the filter seals. Check for air leaks between the housings and seal with caulk as necessary.

5.7.4 Duct and System Integrity: Examine the entire system to ensure that contaminated air cannot leak around the filter bank. Check all perimeter seals and repair as necessary.

5.7.5 Corrosion: If metal components are corroded, repair the corrosion and provide protective coatings as necessary. Be mindful of the impact of painting on the performance and life of the gas phase chemical filters and take appropriate precautions to protect the system. Determine the source of the corrosion and rectify.

6.0 Troubleshooting

6.1 High Pressure Drop Reading Across the Filter System:

6.1.1 High Dust Loading: The most probable cause of high pressure drop will be high dust loading of the particulate filters. The rate of dust loading may not always be constant and may be significantly affected by season and location; e.g., the timing of pollen blooms, production schedules, and rural versus urban locations.

6.1.2 High Airflow Volume: High airflow volume may result from improper fan sizing or improper control of the fan. When clean particulate filters are installed in the system the pressure drop across the system will decrease and the airflow will normally increase. The airflow should be controlled through the use of modulating dampers which are designed to keep the system pressure constant or with the use of variable speed drives. If desired, the filter system may also be slightly oversized so that it will handle the higher airflow at the lowest system pressure without exceeding the recommended filter face velocity.

6.1.3 Condensation: Humid air combined with cold surfaces may result in condensation of moisture and blinding of both the particulate and gas phase filters. This moisture can also result in mold growth and corrosion which may also impact the performance of the filter system. If condensation is a recurring problem, dehumidification or other tempering of the air may be required. System insulation may also be necessary. If the source of the moisture is at the intake, weather hoods or weather louvers to remove sensible moisture in the form of rain should be considered. If the source of moisture is from leaking ducts repair the leaks.

6.1.4 Freezing: On air intake systems the presence of moisture in the filters when caused by or combined with condensation, rain, snow, sleet, or ice, and when subjected to freezing temperatures, can cause the filters to freeze and become impassible. In such cases provide intake protection systems to remove the cause of the problem.

6.2 Visible Discharge of Particulate:

6.2.1 Check for missing or damaged filters and system leaks. Replace filters and re-seal as necessary.

6.2.2 Provide higher efficiency filters on the downstream side (air leaving side) of the system.

6.3 Odors and Smells:

6.3.1 Check the performance of the gas phase chemical filters. If the filters are no longer effective replace them.

6.3.2 Check for missing or damaged filters and system leaks. Replace filters and re-seal as necessary.

7.0 Spare Parts List

It is recommended that the following spare parts be stored at the installation site for routine maintenance purposes. The quantities required will depend on the size of the system. Consult with your AAF representative to determine actual quantities required. Minimum recommended quantities are provided in the table below.

AAF Part Number	Description	Recommended Spares
Refer to the original customer purchase order and the AAF submittal drawing.	SAAF cassette gas phase chemical filters	One full replacement set of each type included in the system.
Refer to the original customer purchase order and the AAF submittal drawing	Particulate filters	One full replacement set of each type included in the system.
114-3026184-1 (A)	Cassette sealing and locking channel	10% of total quantity or a minimum of 5
114-3026192 (B)	Filter seal locking handle	10% of total quantity or a minimum of 5
5241070	Locking handle support tab	10% of total quantity or a minimum of 5
5241062	Locking handle support tab	10% of total quantity or a minimum of 5
2500866 (A)	Face gasket	One full replacement set or a roll of 50 feet
114-3026184-2 (A)	Cassette sealing and locking channel for 1' high half size housings only	10% of total quantity or a minimum of 3

To order replacement parts call: **1-800-477-1214**.

8.0 Equipment Characteristics, Dimensions, Operating Weights, and Shipping Weights

See the AAF submittal drawing supplied on the specific order.



AmericanAirFilter®

SAAF Front Access Housings with SAAF Cassette Gas Phase Chemical Filters

Installation, Operation and Maintenance Instructions



Better Air is Our Business™

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ISO Certified 9001-2000

AAF has a policy of continuous product research and improvement and reserves the right to change design and specifications without notice.

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GPF-3-115 NOV 06 QG 2M