



SERVICE GUIDE

FOR PURAFIL SIDE ACCESS SYSTEM

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

TABLE OF CONTENTS

1.0 PRE-INSTALLATION INSTRUCTIONS

- 1.1 SAFETY CONSIDERATIONS
- 1.2 RECEIVING INSTRUCTIONS
- 1.3 INSPECTION
- 1.4 STORAGE
- 1.5 FOUNDATIONS AND CLEARANCES

2.0 BASIC DESIGN OF THE P.S.A.

3.0 INSTALLATION

- 3.1 POSITION THE UNIT
- 3.2 INSTALL THE MODULES/PURAGRID FILTERS
- 3.3 SAMPLE THE MEDIA
- 3.4 INSTALL THE PARTICULATE FILTERS
- 3.5 INSPECTION AND START-UP

4.0 MAINTENANCE

- 4.1 REPLACEMENT PARTS AND MATERIALS
- 4.2 MEDIA REPLACEMENT

5.0 SPECIAL PRECAUTIONS

6.0 PURAFIL® STAIN REMOVAL PROCEDURE

7.0 WARRANTY INFORMATION

8.0 TROUBLE SHOOTING

9.0 MEDIA SAMPLING RECORD

1.0 PRE-INSTALLATION INSTRUCTIONS

1.1 SAFETY CONSIDERATIONS

- Read this Service Manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
- This manual should be retained with the unit because it contains the information necessary for proper maintenance. There is a pocket envelope provided for this purpose. Attach it permanently to the unit.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

CAUTION:

- Installer should be a trained, experienced service person.
- Disconnect power supply before wiring connections are made to prevent possible electrical shock or damage to equipment. Follow all OSHA local, state and federal safety requirements and/or ordinances.
- Check the assembly and component weights to be sure that the rigging equipment can handle them safely. Forklifts or cranes can be used for installation. Reference Bill of Lading (BOL) or drawing (DWG) for weight. All equipment must be moved without media or module.
- Be sure that the unit is balanced well in the transporting device. Please confirm unit stable and balanced before moving.
- Always conduct a thorough check when the installation is complete.
- Disconnect all power sources prior to entering a blower section. Never enter an enclosed blower cabinet or reach into housing while fan is running or rotating.
- The motors in PURAFIL[®] equipment get very hot. This is normal and should not be regarded as a problem with the motor. However, take special care to avoid touching the hot areas.

1.2 RECEIVING INSTRUCTIONS

UPON RECEIVING PURAFIL, INC. SYSTEMS, NOTE ANY SHIPPING DAMAGE EITHER OBVIOUS OR HIDDEN TO THE CARRIER ON YOUR BILL OF LADING (BOL). IF FREIGHT WAS COLLECT OR BILLED TO A THIRD PARTY, ALL PROBLEMS SHOULD BE ADDRESSED AND PROCESSED AMONGST THE CARRIER AND THE CUSTOMER. IF FREIGHT WAS PREPAID BY PURAFIL, THE FREIGHT CLAIM SHOULD BE ADDRESSED AND PROCESSED AMONGST PURAFIL AND THE CARRIER.

ALL EQUIPMENT SHOULD INSPECTED FOR SHIPPING DAMAGES BEFORE ACCEPTING DELIVERY. CONTACT PURAFIL, INC. LOGISTICS AT 1-800-222-6367 FOR FURTHER INSTRUCTIONS IN CASE OF VISIBLE DAMAGE.

Systems are normally shipped assembled and with motors mounted. All units are attached securely to skids. It is recommended that units be left on their skids for protection and ease of handling while transporting. Straps, rigging, slings, or hooks attached to the skids may be used, with proper care. The units are well protected with triple wall board and are secured with metal bands. Forklifts may be used under the skids, but exercise caution to prevent damage.

- If the unit is to be stored before use, see Section 1.4 in this manual.
- If the unit is to be installed immediately, be sure to check Section 3.0 in this manual.
- To uncrate unit, cut metal bands and remove packaging.
- For positioning and special handling, see Section 3.1 in this manual.

1.3 INSPECTION

The condition of the unit upon its arrival is critical to its proper operation. Prior to start-up, inspect the unit carefully, according to the check list below. Correct any inadequacies before start-up to prevent possible damage or inefficiency. Note, should there be any questions concerning the unit, refer to the serial and sales order numbers found on the **unit identification plate**, when contacting the PURAFIL® representative.

PRE-OPERATION CHECK LIST

YES	NO	CONDITION
___	___	1. Configuration and material are as specified on the purchase order.
___	___	2. Measurements fit submittal requirements

- | | | | |
|---|---|-----|---|
| — | — | 3. | Parts are all present including Modules/PuraGRID filters, particulate filters, media, and gage units. |
| — | — | 4. | Check received goods to confirm if they match packing list. |
| — | — | 5. | Modules/PuraGRID filters, prefilter, and final filter all fit properly |
| — | — | 6. | Latches hold securely and gaskets seal properly |
| — | — | 7. | Labels and serial numbers are present |
| — | — | 8. | Airflow direction is consistent with installation requirements (check labels attached to unit) |
| — | — | 9. | Inspect Media for proper type, quantity and modules |
| — | — | 10. | Confirm receipt of Media Life Analysis (MLA) test kit and file kit and checklist. |

Note: Checking specific points is also imperative before system start-up. See section 3.4 in this manual for a check list.

1.4 STORAGE

The unit should be protected from weather elements during storage, especially when storage time is extensive over 60 days. While indoor storage is recommended, outdoor storage can be adequate when precautions are taken:

OUTDOOR STORAGE PRECAUTIONS

- Cover the equipment with a waterproof tarp. Intake and discharge openings must be sealed. (Use of any plastic as a cover may cause excessive condensation and rusting.)
- If there is the possibility of moisture collection, move the unit to dry area.
- Do not place anything on top of the unit.
- Store Purafil® media and/or PuraGRID filters in a dry place with less than 95% relative humidity and cover it with a waterproof tarp

1.5 FOUNDATION AND CLEARANCES

FOUNDATIONS

Units may be supported in its entirety on a level platform or plinth structure, which are built to support the operating weight of the installation. Units to be used indoors require particular attention to strength of foundation. In some instances, a concrete base is best suited to the system. Concrete allows less chance for vibration than metal structures.

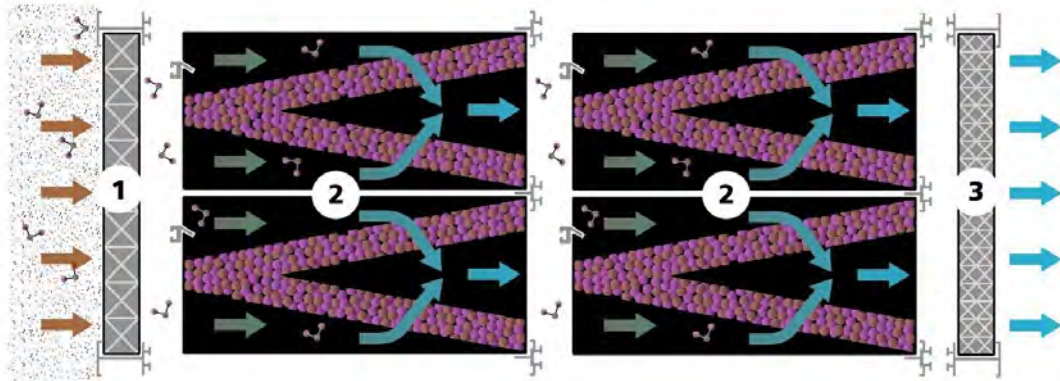
CLEARANCE

All units should be easily accessible for the required periodic maintenance. Do not block return and discharge grilles. Sufficient minimum clearances can be recommended by the local PURAFIL® representative.

2.0 BASIC DESIGN OF THE PSA UNIT

The PSA has particulate and gaseous contamination control capabilities. The unit is designed for ceiling or base mounting. PSA Doors have compression latches and are sealed with high compression gasket.

Figure 1. (See Number Key Below)



The PSA includes one or more of the following sequential components:

1. **PREFILTER-** as the air enters the unit it passes through a particulate filter, the prefilter collects atmospheric dust and larger particles thereby preventing clogging of the perforated surfaces and pellet pores in the next stage of the unit.

See Section 4.0 – Maintenance for Replacement Schedule.

Prefilter options are:

TP-25: A low efficiency (ASHRAE 20%) particulate filter which features include a self-sealing, progressive-density, non-woven synthetic media.

PP-30: A medium efficiency (MERV 7) pleated particulate filter with high surface area and good service life.

Special Prefilters: Special high efficiency particulate filters can be specified in prefilter section of the unit. Contact the factory or your Purafil® representative for available options.

2. **PURAFIL® MODULES/PuraGRID filters** - the air then passes through PK12, PM-12, CK-12, CK-24, PK-18 or PM-18 modules or PuraGRID filters, containing media manufactured by Purafil, Inc. The contaminant gases are destroyed by the processes of adsorption, absorption and chemisorption in this stage.
See Section 3.4

3. **FINAL FILTER-** before leaving the unit, the air moves through a final filter. The final filter removes remaining contaminants, such as media dust and airborne contaminants. The options for final filters are:

See Section 4.0 – Maintenance for Replacement Schedule.

PP-30: a medium efficiency (MERV 6) pleated particulate filter with high surface area and good service life.

JFL-90: a high efficiency (MERV 13) rigid-type, final filter.

FF-90: a high efficiency (MERV 14) rigid-type particulate filter with self-supportive rigid cartridges.

PH-97 HEPA Filter: a high-efficiency particulate air (HEPA) filter with an efficiency of 99.97% at 0.3 µm.

Special Final Filters: Contact your Purafil® representative for pricing and sizing information.

3.0 INSTALLATION

After the entire pre-operative inspection is finished (Section 1.3), complete the following sequence for installation. Sections 3.1 – 3.4 contain detailed instructions.

- 1) Position the unit: Remove the unit from the skid and position it in the designated operation location
- 2) Fill and install the modules. See Module Filling and Media Replacement Service Guide.
- 3) Inspection and start-up.

3.1 POSITION THE UNIT

Review Section 1.5 in this manual for foundation and clearance instructions. The standard unit can simply be lifted from its skid and transported by lift to its pre-designated operation location according to facility safety requirements. **IMPORTANT:** Proper moving equipment must be used to transport.

Large units should be adequately supported to minimize racking and misalignment of doors. Any positioning or repositioning of the unit must be done when equipment is free of media or modules.

3.2 FILL AND INSTALL THE MODULES

PSA unit may contain one or more section of chemical modules or PuraGRID filters. Proper filling, installation, and maintenance of the chemical filtration media are critical to the unit's efficient operation. The modules/PuraGRID filters are designed specifically for media manufactured by Purafil, Inc. and allow the media to perform to its maximum efficiency, through proper shape and bed depth. Please see the Module Filling and Media Replacement Service Guide for detailed instructions.

WARNING: Modules filled by hand may result in bypass of caustic and corrosive gases resulting in system failure. Always use Purafil factory-filled modules, which are filled, vibrated and compacted at the factory by trained personnel, proven to eliminate bypass and are in compliance with ISO 9001:2000 Certified Quality Management System.

3.3 INSTALL THE PARTICULATE FILTERS

The PSA unit may contain prefilters and final filters sections. These sections contain tracking of appropriate depth for the intended filter. Installers should slide all filters along the track until they completely fit inside the unit. Special instructions and a description of the tracking each for each filter type listed below.

TP-25: Tracking is 1" deep.

PP-30: Tracking may be 1", 2" or 4" deep. Follow the airflow direction arrow on the filter frame.

JFL-90: Tracking is 1" deep for this headered filter. Orient the filters so that the gasket seals between filters.

FF-90, PH-97 HEPA: Tracking is 12" deep for these box style filters. Follow the airflow direction arrow on the frame.

Particulate filters for use in the PURAFIL® unit will require periodic replacement during the normal lifetime of the equipment. Replacement items may be ordered from your local PURAFIL® representative or from Purafil, Inc.

3.4 INSPECTION AND START-UP

Purafil, Inc. advises that customers contact their local PURAFIL® representative to schedule an equipment inspection before start-up. The equipment inspection should evaluate the following categories: See next page.

NOTE: Gather and submit the first media sample at initial start-up in order to verify media strength and provide enduser information into the Purafil Scientific Network to ensure the customer receives technical updates and complimentary media life analysis reports from PURAFIL® labs for the life of the unit.

4.0 MAINTENANCE

4.1 REPLACEMENT PARTS AND MATERIALS

While Purafil, Inc. products are built with durability, some parts of the PURAFIL® unit will require replacement during the normal lifetime of the equipment. Replacement items may be ordered from your local PURAFIL® representative or from Purafil, Inc.

Consumables: In order to maintain proper performance levels, particulate filters and PURAFIL® media must be replaced periodically, as they have a finite life, which can be determined by Purafil's complimentary Media Life Analysis (MLA) service Section 4.2.

Modules: Modules are constructed of high impact polystyrene. While not considered to be a consumable item, these units are subject to physical damage in handling.

Particulate Filters: To ensure proper efficiency of your system change particulate filters often. Dirty filters will inhibit proper functioning of the unit.

Blowers: For proper maintenance, refer to the blower service guide for powered units.

The Purafil Start-up Kit includes specification sheets for peripheral parts, which are manufactured by our vendors.

4.2 MEDIA REPLACEMENT

Media Life Analysis (MLA) is a complimentary Purafil, Inc. service. MLA Sample Kits are available through Purafil, Inc. If analysis reveals that it is time to replace the media, order the appropriate quality of replacement modules or bulk per equipment requirement. See Media Sampling Service Guide for instructions on how to take a media sample from your unit.

5.0 SPECIAL PRECAUTIONS

DISPOSAL

PURAFIL® media is a non-toxic, non-flammable substance. Filtration of contaminants through PURAFIL® media causes molecular changes to occur, and the resulting product is usually not harmful to the environment. Although special precautions are generally not required when disposing of spent media, government regulations may require specific disposal procedures if the resulting product could be harmful to the environment. Large quantities of PURAFIL® media should not be disposed of in dumpster-like equipment because the weight of the media could cause difficulties in handling the dumpster.

Independent laboratory analysis for Environmental Protection Agency toxicity characteristics may be required if the contaminants eliminated from your environment include heavy metals and pesticides.

INHALATION

A well-ventilated work area is suggested for changing the PURAFIL® media, as dusting occurs in fresh media due to handling abrasion.

Workers should avoid direct inhalation of considerable PURAFIL® dust, as it induces sneezing. In closed, unventilated spaces, OSHA-rated dust masks (NIOSH 95 or the equivalent) are required.

WATER

Avoid exposing the PURAFIL® media to water or precipitation, as this may leach out the chemical impregnants. Storage of media should be in a dry place with less than 95% relative humidity. Exposure of permanganated solution to the

skin causes brown staining which is temporary and not harmful. This staining can be removed by washing in a diluted solution of water and sodium bisulfite.

EYE CONTACT

If dust is exposed to the eyes or delicate membrane, flush thoroughly with water and seek treatment by a physician. Follow normal procedures for exposure to abrasive dust.

6.0 PURAFIL® STAIN REMOVAL PROCEDURE

While conducting media sampling or refilling the unit or modules with media, fabrics and/or clothes could be stained.

The following stain removal procedure is stated here as information only, and neither Purafil, Inc., nor any of its subsidiaries, or any agent or employee of Purafil, Inc. make any warranty or other representation regarding the efficacy or safety of this procedure. The stain removal could cause further damage to the garment or to the item from which one may attempt to remove the stain.

If the dust from PURAFIL® Chemisorbant, PURAFIL® Select, or PURAFIL® SP media comes in contact with organic material, there are two possible stain problems:

1. Manganese dioxide (MnO_2) which is insoluble, characterized by a medium brown color, and is found in expended PURAFIL® media, can usually be removed by normal washing.
2. New (unused) PURAFIL® media contains potassium or sodium permanganate ($KMnO_4$ or $NaMnO_4$) which is a strong oxidant and will react with and discolor any organic material which it contacts. These stains, which will be brownish black in color, may be removed using a solution of sodium bisulfite in water, after the garment has been removed from the person.

However, if the fiber has been damaged by the permanganate, removal of the stain may make the damage more apparent.

CAUTION: This procedure should start with a very weak solution, gradually increasing the strength until the stain is removed. Use of too strong a solution could conceivably cause additional fabric damage.

NOTE: Sodium bisulfite gives off sulfur dioxide (SO_2) gas; therefore, it must be used in a well-ventilated area.

7.0 WARRANTY INFORMATION

PURAFIL® warrants hardware equipment manufactured by PURAFIL® to be free from defects in material and workmanship under normal use and service for

twelve (12) months from startup date or eighteen (18) months from shipment date. PURAFIL'S obligation under this warranty shall be limited to replacing any parts thereof which shall be demonstrated to have been defective. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

PURAFIL MAKES NO WARRANTIES AS TO MERCHANTABILITY OR AS TO THE FITNESS OF THE MERCHANDISE FOR ANY PARTICULAR USE AND SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECTLY OR INDIRECTLY, ARISING FROM THE USE OF SUCH MERCHANDISE OR FOR CONSEQUENTIAL DAMAGES. No person, firm or corporation is authorized to assume for PURAFIL® any other liability in connection with the sale of these goods. Equipment, parts and material manufactured by others and incorporated in PURAFIL® equipment are warranted by PURAFIL® ONLY TO THE EXTENT OF THE ORIGINAL MANUFACTURERS LIABILITY TO PURAFIL.

8.0 TROUBLE SHOOTING

Equipment/Parts	SYMPTOM	PROBLEM	CHECKS/REMEDY
Particulate filters	Airflow too low	Heavily soiled final particulate filters	Were loaded filters relatively clean and dust-free when installed?
	Restricted airflow due	Media corrupted by moisture	Was a sacrifice final filter used during the first few minutes of operation and then replaced by the specified filters?
		Modules are clogged	
		Improper sized duct, duct clogged, or unopened damper	
	Dust blowing out discharge	Final filter not in place	Insert appropriate final filter
Sacrificial filters not used			
Chemical Media	Discolored Media	Box/bad left open	Discard discolored media, but remainder of media is still useful
	Boxes arrive damaged with hole in box	Boxes damaged by freight companies during transit	Seal opening with tape if Purafil® SP Media does not leak out. Media inside is still useful
	Modules arrive damaged or screens broken with media spilling out	Boxes damaged during transit or plastic screens separated during transit	Take digital picture of damage. Call damage for replacement module

	PuraGRID filters arrive with excessive carbon dust on frame	Heavy handling of product caused carbon cubes to rub and create dust	Remove shrink wrap, wipe frame with cloth and remove excess dust before installation
Blower Sector	Blower vibrating excessively	Wheel sheave alignment	Check and tighten bolts
	Blower shutting down	Loose bolts	Align sheaves
	Blower wheel rubbing	Belt tension	Tighten or replace belt
	Blower not starting	Wired improperly	Size over current protection
	Airflow too low or too high	Underrated breaker, fuses, starters	Wheel rotation
		Review ramp time Incorrect power supply	Check and lubricate bearing
Housing	Gasket	Doors leaking	Check and lubricate bearing
		Gasket deteriorating	Replace gasket
		Tighten latches	Compress latches or handles

	Handles	Air bypass	Tighten interior or compress latches
		Water leaking	
		Rust	
		Gasket deteriorating	

Represented By:

Important Notice

The information contained in this bulletin reflects the results of various testing and analytical procedures believed by PURAFIL, INC. (a USA corporation) to be useful indicators of the relative performance of air filtration systems and media. It is intended for use by persons having appropriate scientific and technical knowledge and experience, at their own risk. This bulletin does not in any way constitute a representation, warranty, promise, or guarantee by PURAFIL, INC. of the installed performance of PURAFIL® media.