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PURAFIL

SERVICE GUIDE

4

PURAFIL SIDE ACCESS SYSTEM

INSTALLATION, OPERATION & MAINTENANCE
INSTRUCTIONS

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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.
- Check the assembly and component weights to be sure that the rigging equipment can handle them safely.
- Be sure that the unit is balanced well in the transporting device.
- Always conduct a thorough check when the installation is complete.
- Never enter an enclosed blower cabinet or reach into a housing while fan is running.
- 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

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.

Upon receiving systems from Purafil, Inc., note any shipping damage, obvious or hidden, to your carrier and on your Bill of Lading. All problems should be handled between the customer and carrier except for U.P.S. shipments, which require the customer to contact Purafil, Inc. for action.

- 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 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 sales order form.
—	—	2. Measurements fit submittal requirements
—	—	3. Parts are all present including modules, particulate filters, media, and gage units.
—	—	4. Modules, prefilter, and final filter all fit properly
—	—	5. Latches hold securely and gaskets seal properly
—	—	6. Labels and serial numbers are present
—	—	7. Airflow direction is consistent with installation requirements (check labels attached to unit)

Note: Checking specific points is also imperative after the unit is started up. See section 3.4 in this manual for check list.

1.4 STORAGE

The unit should be protected from weather elements during storage, especially when storage time is extensive. While indoor storage is considered best, 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 well covered. (Use of black plastic as a cover may cause excessive condensation and rusting.)
- If there is the possibility of moisture collection, allow for proper drainage.
- Do not place heavy equipment on top of the unit.
- Store Purafil® media in a dry place with less than 95% relative humidity.

1.5 FOUNDATION AND CLEARANCES

FOUNDATIONS

Some units may require new or reinforced foundations, due to their weight. Always be sure to check that the existing foundation is adequate for the unit to be installed. 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.

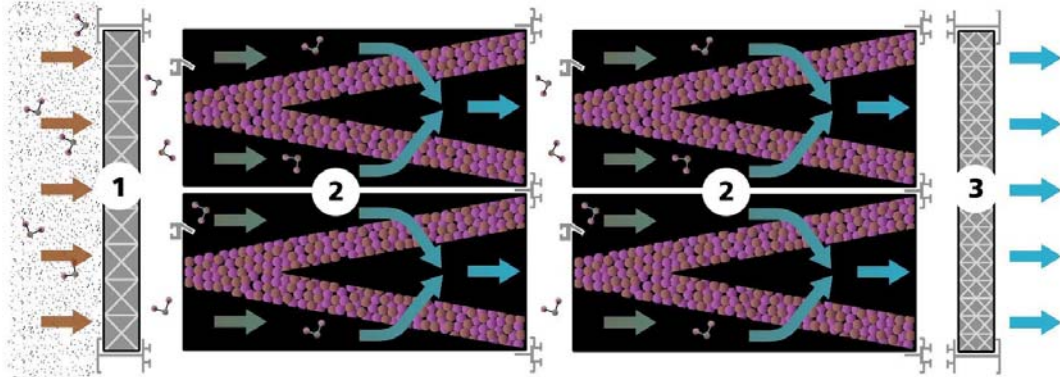
CLEARANCE

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 mounting into existing ductwork. PSA Doors have compression latches and are sealed with urethane foam.

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.

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 6) 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-** the air then passes through PK12, PM-12, CK-12, CK-24, PK-18 or PM-18 modules, containing media manufactured by Purafil, Inc. The contaminant gases are destroyed by the processes of adsorption, absorption and chemisorption in this stage.

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:

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

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

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

HEPA Filter: an ultra-high efficiency (99%) particulate filter housed in a wooden frame with aluminum separators.

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 by referring to the instructions in Section 3.1 below:

- 1) 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) Install the particulate filter. See section 3.3.
- 4) Start the unit. See section 3.4.
- 5) Perform post-start inspection check. See section 3.5

3.1 POSITIONING 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 “walked” or transported by lift to its pre-designated operation location (if in close proximity to the skid), according to facility safety requirements. Large units must be adequately supported to minimize racking and misalignment of doors.

3.2 MODULES

Proper filling, installation, and maintenance of the chemical filtration media is critical to the unit's efficient operation. The modules 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.

3.3 PARTICULATE FILTERS

Proper selection and installation of particulate filters for use in 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.

TP-25 PREFILTER: Install this filter by sliding it along the track so that airflow moves through the coarse white side first.

JFL-90: Slide the 1" header into the provided track.

PP-30: Install this filter by sliding it along the track until it is completely housed within the unit.

FF-90: Install this filter by sliding it along the track until it is completely housed within the unit.

3.4 POST-START INSPECTION/CHECK

Before initial start-up of system, contact your local PURAFIL® representative. After unit has been started, use the checklist below to inspect the unit is in proper working order.

YES	NO	CONDITION
___	___	1. Joints, seals, and gaskets do not leak.
___	___	2. Modules are completely full of media and fit properly.
___	___	3. Particulate filters have been installed.

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. (See the Media Sampling Service Guide)

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.

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 pounds of media required per module used in the unit. 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, dust masks such as the 3-M No. 8500 are suggested.

WATER

Avoid exposing the PURAFIL® media to water or precipitation, as this dissolves permanganate content. 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

The following stain removal procedure is stated here as information only, and neither Purafil, Inc., any of its subsidiaries, nor 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 with which it comes in contact. 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 (SO₂) 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

	SYMPTOM	PROBLEM	CHECKS/REMEDY
Particulate filters	Airflow too low	Heavily soiled particulate filters	Were loaded modules relatively clean and dust-free when installed?
			Was a sacrifice final filter used during the first few minutes of operation and then replaced by the specified filters?
	Dust blowing out discharge louver	Final filter not in place	Insert appropriate final filter

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.