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PURAFIL®

# SERVICE GUIDE

# 4

## ELECTRONIC CABINET UNIT

INSTALLATION, OPERATION & MAINTENANCE  
INSTRUCTIONS

**TO BE USED IN CONJUNCTION WITH:**

SERVICE GUIDE 4 Gage Unit

SERVICE GUIDE 4 Blower Assembly

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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. Keep it with 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 electric shock or damage to equipment.
- Never pressurize the equipment in excess of specified test pressure.
- Never enter an enclosed blower cabinet or reach into a unit while the fan is running.
- Always conduct a thorough check out when the installation is complete.

### **1.2 RECEIVING INSTRUCTIONS**

Systems are normally shipped assembled and with motor mounted. The units are well protected with triple-wall cardboard and secured with shipping bands.

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.

To unpack unit, cut shipping bands and remove packaging. See installation instructions for complete directions on how to mount the unit.

### 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 checklist below. Correct any inadequacies before start-up to prevent possible damage or inefficiency. Note, should there be any questions concerning the unit and 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. Motor phase and voltage are correct
___	___	5. Modules, 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)

*Note, checking specific points is also imperative after the unit is started up. See section 3.4 in this manual for checklist.*

### 1.4 CLEARANCE

All units should be easily accessible for the required periodic maintenance. The local Purafil representative can recommend sufficient minimum clearances.

## **2.0 OPERATIONAL CONCEPTS AND DETAILS**

### **2.1 ECU APPLICATIONS**

Industry is finding varied methods for applying electronics to the process control aspect of manufacturing. This technology has led to the use of freestanding controllers that are located randomly throughout the manufacturing works, instead of being enclosed in a control room. The need for protecting this equipment from corrosive gases is just as critical as major computer or control centers. The Purafil Electronic Cabinet Unit was developed to serve this area of computer protection. The ECU can be mounted directly on a sealed computer room to create a microclimate inside the room to provide maximum security for delicate and expensive equipment.

### **2.2 HOW PURAFIL SYSTEMS WORK**

The ECU is a recalculating unit designed to be mounted on a sealed computer room that requires gas phase filtration. The ECU will create a microclimate inside the room, which will protect valuable electronic equipment.

### **2.3 BASIC DESIGN OF THE ECU**

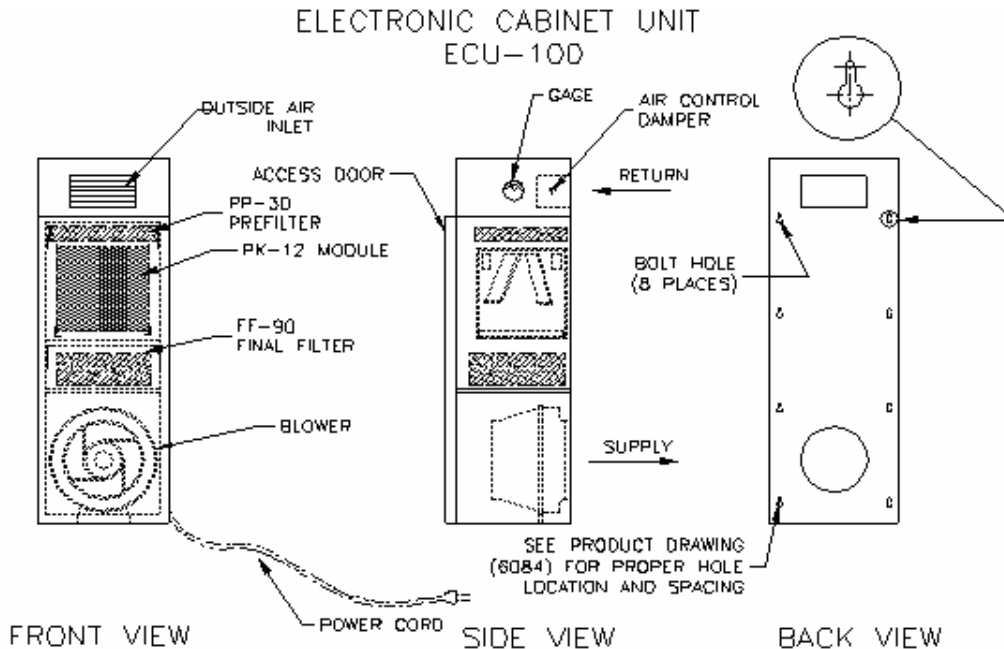
The ECU houses a three-fold method of air purification. Powered by an Inline direct drive plastic blower and a 115-volt, single-phase, 60-hertz, open motor.

*(NOTE: The ECU can accommodate different electrical requirements, but these requirements must be specified prior to ordering the unit).*

The ECU channels air through a 30% efficiency PP-30 particulate filter which prevents atmospheric dust from clogging the pores of the purafil media and protects the surface of the Purafil MediaPAK™ PK-12 Module assembly which contains the media. Next the air moves through the PK-12 Module which is filled with Purafil media for gaseous contaminate removal. Before exiting the unit the air moves through a high efficiency box-type, final filter. (See Figure 1)

The ECU is constructed of Cold Rolled Steel and painted with a textured Grey polyurethane paint.

**FIGURE 1: BASIC DESIGN OF THE ECU**



The ECU includes the following sequential components:

1. **Damper** – The air control damper allows the operator to regulate the amount of recirculated air that passes through the unit.
2. **Prefilter** – As the air enters the unit it passes through 30-35% efficiency PP-30 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.
3. **PK-12 Module Section** – The air passes through perforated, “V” shaped PK-12 Modules, which contains the user’s choice of Purafil media dependent upon the atmosphere to be controlled.
4. **Final Filter** – Before exiting the unit the air moves through a high efficiency box-type, final filter any remaining contaminants such as media dust and airborne contaminants are removed in this stage.
5. **Blower** – The air is propelled through the unit using a direct drive Inline blower that is constructed of plastic and powered by a 115-volt open motor.
6. **Gages** – The Minihelic gage indicates if the ECU is providing proper cabinet pressurization.

### **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 – 3.4 below:

1. Remove the unit from the skid and position it in the designated operation location.
2. Hook up the electrical connections and check for proper rotation.
3. Install the Modules. (See Section 3.2)
4. Install the particulate filters. (See Section 3.3)
5. Start the unit (see Section 3.4).
6. Perform post-start inspection check. (See Section 3.4)

#### **3.1 POSITIONING THE UNIT**

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. The ECU is designed to sit on the ground or it can be hung directly onto the cabinet using the holes located on the back of the unit (See Fig 1)

#### **3.2 MODULES**

Proper installation and maintenance of the chemical filtration media is critical to the units 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. When installing the module the point of the “V” must be facing upward. Unit will be labeled showing proper module configuration.

#### **3.3 PARTICULATE FILTERS**

Proper selection and installation of particulate filters for use in Purafil Systems are necessary steps in obtaining the air quality best suited to the user’s needs. Particulate filters are available in different sizes and efficiencies, and variations in either of these characteristics may affect the efficiency of the Purafil system. To install the particulate filters slide it along the track provided.

### 3.4 POST-START INSPECTION/CHECK

Before initial start-up of system, contact your local PURAFIL® representative. Their name and phone number is attached to your system.

YES	NO	CONDITION
_____	_____	1. Fan rotation is in the proper direction. (See Figure 7)
_____	_____	2. Joints, seals, and gaskets do not leak.
_____	_____	3. Gages work properly (i.e.lines hooked up correctly).
_____	_____	4. Dampers work properly
_____	_____	5. Modules are completely full of media and fit properly.
_____	_____	6. After 1-2 weeks of operation check belt(s) and tighten if necessary. (See Blower Assembly Service Guide)

## 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. Certain moving parts such as motors, bearings and belts may be obtained from conventional local sources.

#### Consumables

In order to maintain proper performance levels, particulate filters and Purafil media must be replaced periodically, as they have a finite life (See Media Sampling Procedure Service Guide)

### 4.2 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.

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**

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.

### **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.

### **Water**

Avoid exposing the Purafil media to water or precipitation, as this dissolves permanganate content. Storage of the media should be in a dry place with less than 95% relative humidity. Exposure of permanganate 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 bisulfate.

## **4.2 PURAFIL STAIN REMOVAL**

The following stain removal procedure is stated here as information only, and neither Purafil, Inc. nor its subsidiaries, nor any agent or employee of Purafil, Inc. makes any warranty or other representation regarding the efficiency 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.

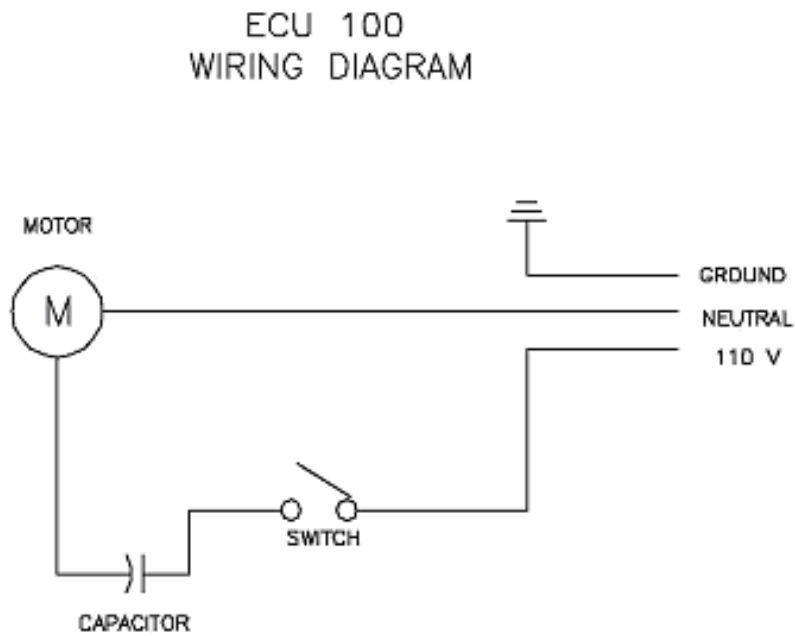
Note: Sodium bisulfate gives off sulfur dioxide gas; therefore; it must be used in a well-ventilated area.

## 5.0 WIRING DIAGRAMS

The ECU will be pre-wired before leaving Purafil, Inc. Wires may vibrate loose with rough handling. Check all wiring connections before start-up. If any problems occur contact your local Purafil representative immediately. (See *Figure 2*) if there are any questions.

NOTE: A PROFESSIONAL ELECTRICIAN SHOULD PERFORM ALL WIRING REPAIRS.

**FIGURE 2: ECU WIRING**



## 6.0 TROUBLESHOOTING

SYMPTOM	PROBLEM	CHECKS/REMEDY
Dust blowing out discharge opening	Final filter not in place	Insert appropriate final filter
	Final filter heavily soiled	Change the appropriate final filter
Unit fails to operate	No voltage	Check power source
	Improper voltage	Verify voltage from power source
	Defective motor	Replace
	Motor improperly wired	Rewire
Airflow too low	Blown fuse or open circuit breaker	Replace fuse or reset
	Filters may be loaded	Change filters
	PK-12 Module perforated surface may be clogged	Vacuum or blow off with compressed air

## 7.0 WARRANTY

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 SAMPLE RECORD

Sampling Record / Schedule					

Represented By:

### Important Notice

The information contained in this Bulletin reflects the results of various testing and analytical procedures believed by PURAFIL, INC. (a U.S.A. 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.