

OPERATION & MAINTENANCE GUIDE

FAN FILTER UNITS

MODEL 421-SPX, 321-SPX, 221-SPX

PRINCIPLE OF OPERATION

A motorized Fan Filter Unit (FFU) is designed to create an atmosphere of particle free air in the area located directly in the airstream. This is accomplished by maintaining a consistent flow of HEPA filtered air.

METHOD OF OPERATION

FFU's are provided standard with ON/OFF switches and variable speed controls located on the top of the unit. As an option, FFU's may be provided with a prewire package which would locate controls to a remote panel. Adjusting the speed of the fan will vary the amount of clean air provided by the unit. Removal of the prefilter on top of the unit allows access to the fan assembly. The motor is internally thermally protected against overload.

INSTALLATION

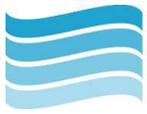
Modules should be supported from eyebolts located at each of (4) corners. If the unit is to be placed in a suspended ceiling system, the unit should not be placed on the T-bar without independent support. Because of the weight of the unit, a minimum 12-gauge hang wire will be required. Connect the hang wire to the eyebolt and to a building member capable of handling the additional load of the module. If the unit is to be installed into a Technical Air Products' cleanroom, hanging support is not required, as the ceiling grid will support the weight of the FFU (unless local code requires seismic support).

WIRING

Standard FFU models come with an 8' power cord, which can be plugged into any standard 120/1/60 outlet equipped for a polarized plug with ground. If no power cord is present, the motor leads are factory wired to a junction box on the FFU. 120-volt power will need to be field wired to the junction box. Any additional safety switch needed to meet local codes should be provided by installer. If the unit has not been purchased with a variable speed control, the wiring connection should be made to this component. Wiring leads have been provided for wire nut connection. NOTE: All units must be electrically grounded in accordance with the National Electrical Code and ANSI-CI-1971.

START UP CHECK LIST

- 1) Check that voltage and all wiring is correct.
- 2) Determine if the blower wheel is free to rotate and has not been subject to misalignment in shipping or installation. Check nuts, bolts, and screws for tightness.
- 3) Apply power and check that the blower wheel is rotating in the correct direction, which should be clockwise when viewed from the top of the unit. Our fan powered filter products are tested for proper operation at our factory. However, problems can sometimes occur during shipment. If the blower does not turn or starts slowly, a wiring connection may have come loose during shipment. To check the wiring connections, first disconnect power to the unit. Check that all wiring connections are intact. One connection that can cause failure is the capacitor connection. The capacitor is located under the prefilter, next to the blower inlet. Remove the protective rubber boot and check that the (2) wiring connections are firmly attached. If this fails to solve the problem, check all other wiring connections.



CLEANING AND MAINTENANCE

Periodic cleaning of all FFU's is strongly recommended. Dirt accumulation on the impeller can cause vibration which greatly increases stress and load on motor bearings. A program of preventative maintenance will greatly increase fan and motor life. Inspect the fan wheel, motor, and filter three months after initial installation. Based on the findings after this three-month period, set up a periodic inspection schedule. If the unit was exceptionally clean, every six or nine months may be acceptable; if extremely dirty, it may require monthly service.

The following items will require periodic service:

- 1) Change prefilter.
- 2) Clean fan wheel as required to insure smooth, quiet operation.
- 3) The motors in these modules are equipped with lubricated bearings. They will require no relubrication for normal operation.

FINAL FILTER REPLACEMENT

Eventually the final filter will need to be replaced. When this is required, will vary with the application. If full flow is required to maintain room conditions, the filter will need replacement sooner than if partial flow is sufficient. A replacement is necessary when the module can no longer provide the required room conditions. To replace the HEPA filter, the module must be removed from the ceiling. For replacement, follow these steps:

- 1) Remove the unit from the ceiling.
- 2) Using a ¼" hex drive, remove the screws that hold the filter to the sheet metal housing.
- 3) On a flat and level surface, detach the housing from the old filter and carefully place it on top of the new filter, being careful not to allow the sheet metal to touch the paper media. Any contact will damage the media and cause a leak. Do not tighten screws so that gasket is over-compressed and FFU doesn't sit flat on the ceiling grid.
- 4) Center the housing on the new filter and replace the attachment screws.
- 5) The unit may now be re-installed.

Replacement HEPA filters come with new gasketing, so no additional sealing should be required.

WARRANTY

Technical Air Products (TAP) warrants this equipment to be free from defects in material and workmanship for a period of one year from the ship date. Any units or parts proving defective within this period will be repaired or replaced at the discretion of TAP. Under no circumstances will TAP be responsible for any installation or removal costs, or any costs related to improper performance, or lost revenue.

If you have any questions or comments, please call 1-800-595-0020 for assistance.