

## FN1AAF

# OptiClean™ Negative Air Machine and Air Scrubber

## Operation and Maintenance Manual

**NOTE:** Read all instructions and data in this manual before operating.



Fig. 1 – FN1AAF

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### A Note About Safety

Any time you see this symbol ⚠ in manuals, instructions and on the unit, be aware of the potential for personal injury. There are three levels of precaution:

**DANGER** identifies the most serious hazards which will result in severe personal injury or death.

**WARNING** signifies hazards that could result in personal injury or death.

**CAUTION** is used to identify unsafe practices which would result in minor personal injury or product and property damage.

**NOTE** is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

### ⚠ WARNING

#### PERSONAL INJURY OR PROPERTY DAMAGE HAZARD

Failure to follow this warning could result in personal injury or property damage.

Improper installation, adjustment, alteration, service, maintenance, or use can cause conditions which may cause personal injury or property damage. Consult a qualified installer or your distributor for information or assistance. Read and follow all instructions and warnings, including labels shipped with or attached to unit before operating.

### ⚠ WARNING

#### ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death. Disconnect all electrical power to the unit before removing access panels to perform any maintenance.

### ⚠ WARNING

#### PORTABLE UNIT AND METAL SHARP EDGES HAZARD

Failure to follow this Warning could cause personal injury or death.

This unit must be used in a location where unsupervised children are not allowed to play. The unit is portable, and areas inside and under the unit could cause personal injury. If the unit is used in a horizontal configuration, physical barriers must be installed around the unit to prevent unauthorized access.

### ⚠ NOTICE

#### CALIFORNIA USERS

When this equipment is used in the state of California, it must be anchored or affixed in such a way that the unit is not mobile.

### About the Negative Air Machine/Air Scrubber

The OptiClean™ is a portable solution primarily designed to help convert normal hospital rooms into Airborne Infectious Isolation Rooms (AIIR). Designed to ASHRAE's Standard 170 for Ventilation of Health Care Facilities, the OptiClean™ uses highly efficient filters and a heavy duty, yet quiet, motor to remove contaminated air from the room. The resulting negative air pressure, or "vacuum effect," helps limit the spread of air-based contaminants into surrounding areas.

If negative pressure is not required, such as in an open-air temporary hospital, a business location or home, the machine can be used as an air "scrubber," pulling air in, removing many contaminants, and discharging cleaner air back into the room.

The OptiClean™ negative air machine/scrubber features:

- 99.97% efficient long-life HEPA filter removes particles as small as 0.3 microns
- Standard MERV 7 or higher pre-filter
- Minimum 200 CFM and Maximum 1500 CFM
- Meets or exceeds ASHRAE Standard 170: Ventilation of Health Care Facilities
- Vertical design for smaller footprint compared to many competitors, and can be mounted and operated horizontally when necessary
- Portable and adaptable to nearly any location
- Heavy duty locking casters for easy and smooth transport
- HEPA filter rack and sealing design meet air leakage requirement
- Red lighted indicator to alert user when filters are overloaded (generally means pre-filter requires replacement)
- Green ON/OFF switch illuminates to verify when running
- 3-speed selector switch on 006 and 015 size models for various air flow ranges
- 10-foot long power cord with strain relief
- 115V
- Galvanized steel, pre-painted cabinet is fully insulated
- Exhaust transition plate to standard 10-inch round (005/006 size) or 12-inch oval (015 size) duct included
- UL® Listed
- One year limited warranty

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## ! WARNING

### TIP OVER HAZARD

Failure to follow this warning could result in personal injury and/or property damage.

Unit must be on a smooth and solid surface. When moving the unit:

- make sure the path is free of obstacles
- make sure the wheels are unlocked
- place hands around the center of the unit and move slowly

## Unpacking Your System

Carefully remove your unit from its packaging. Inspect for damage. If damage is noted, contact your shipping carrier and file a claim.

### Assemble the Unit

1. Lay the unit on its back, as near as possible to its intended final location.
2. Remove the bottom front door, then the top door over the blower section. Inspect the HEPA filter and make sure it has not been dislodged or damaged during shipping, that the side bolts and nuts near each corner are tight and the HEPA filter is held securely in place, and the seal around the top edge of the filter is in place.
3. Remove the parts bags and/or box from the lower compartment.
4. Make sure the first-stage pre-filter is in place and not damaged. Remove and discard the flat piece of cardboard that is shipped between the pre-filter and HEPA filter.

**NOTE:** The unit can be operated without casters, on its back in a horizontal orientation, as long as there is sufficient space at either end for air intake and output. Make sure to properly strap or otherwise secure it to a base to avoid unintentional movement.

When the unit is mounted horizontally, an additional pre-filter must be used. See [Table 1](#).

**Table 1 – Horizontal Configuration Pre-Filters (cartons of 12)**

OptiClean Model	Pre-Filter Part No.
FN1AAF005, FN1AAF006	KFAFK0212MED
FN1AAF015	KFAFK0312LRG

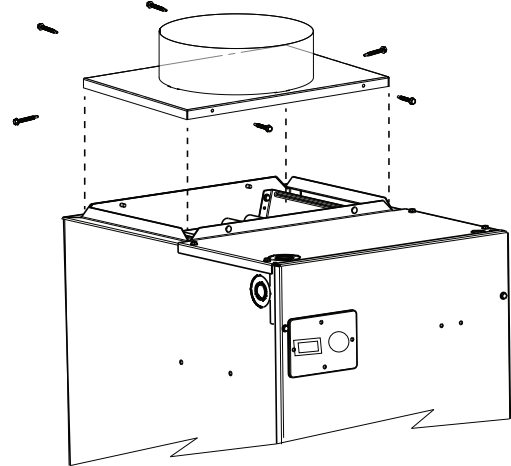
5. Attach the caster assemblies (ref [Fig. 2](#)) to the bottom of the unit.
  - a. Remove the screws from the outer corners of the cabinet bottom.
  - b. Position the caster assembly along the outer edge of the unit and line up the screw holes.
  - c. Use the removed screws to attach the caster assembly.
  - d. Repeat for the other side.



**Fig. 2 – Boxed Casters and Duct Transition (10-inch round shown)**

6. Use the included screws to attach the round or oval duct transition plate to the top of the unit ([Fig. 3](#)). **NOTE:** The transition plate **must** be installed even if the unit is being used as an air scrubber. An optional air diffuser (KPADG0101SML/LRG) is also available for air scrubber use.

7. Carefully lift the unit to a vertical position on its casters. **HINT:** Lock the casters before lifting or tilting up the unit.
8. Move the unit in its final position and lock all four casters.
9. For negative-air setup, do these steps. If used as an air scrubber, skip to step 10.
  - a. Use a compression clamp to attach 10- or 12-inch round flexible ducting (supplied by others) to the transition plate on top of the unit.
  - b. Run the flexible ducting as recommended by the mechanical plan and attach to a transition piece (ceiling register box, etc., purchased or fabricated on site) to complete a path for the air to exhaust from the negative-air area. Caulk or tape all seams. Run the flexible duct per applicable codes and requirements, with no hard bends or obstructions.
10. Replace the top door over the blower, then the bottom front door.
11. Plug the unit into a grounded 115V outlet.



**Fig. 3 – Typical Duct Transition Installation**

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## Operating Instructions

**IMPORTANT:** Always lock the casters during operation.

**IMPORTANT:** Make sure there are no paper or lightweight loose objects near the floor by the unit that could be sucked into the bottom air intake or front opening of the bottom front door. We recommend that you regularly clean or sweep the floor around the unit to extend the life of the pre-filter.

- Locate the control panel on the front upper left ([Fig. 4](#)).
- Rock the green ON/OFF switch up to the ON position. It should illuminate. There will be a slight delay before air begins to move as the blower motor has a built-in 3-second operational delay.
- For the 006 and 015 models, select the fan speed desired.
- Observe the unit running for a short time to make sure there are no unusual noises, that air is freely flowing through the transition and ducting, and the unit is not shifting position. Make sure the casters are locked!



005



006 / 015

**Fig. 4 – Control Panels**

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## Routine Maintenance

### Daily

Inspect the unit:

- power cord is not broken, frayed or worn, and the plug is fully engaged at the wall outlet
- casters are locked
- red filter/obstruction indicator is not illuminated
- unit operates without excessive vibration or unusual noises
- flexible exhaust ducting (if used) is not kinked or damaged, and securely attached at both ends

### Cleaning

Routinely clean any dust and contaminants from the exterior of the unit and power cord with a mild cleaner. Do not use excessive liquid. Decontaminate as necessary with a facility- and EPA-approved disinfectant.

### Filter Replacement

**NOTE:** Before replacing filters, check to make sure there is nothing impeding the airflow into the unit. Check under the unit for paper, rubbish, etc., that may be trapped on the intake side.

### CAUTION

#### PERSONAL PROTECTION

Consider the filters contaminated. Wear appropriate Personal Protective Equipment (gown, gloves, respirator, etc) when changing filters, and seal them in plastic bags for disposal. Refer to ASHRAE “Guidance for Building Operations During the COVID-19 Pandemic” — <https://www.ashrae.org/news/ashraejournal/guidance-for-building-operations-during-the-covid-19-pandemic>

### WARNING

#### MOVING PARTS & SHARP EDGES HAZARD

Failure to follow this warning could result in personal injury. Do not place objects on top of the discharge plenum. Keep hands and face away. Avoid rotating blower wheel which can cause serious injury. Wear gloves when handling.

**IMPORTANT:** Please ensure motor is set to max speed when relying on the filter indicator light to indicate time for filter change.

**NOTE:** If your facility already has a procedure in place for replacing filters, follow your procedure. If guidance is needed then follow these instructions.

#### Pre-Filter

The pre-filter should generally be replaced every 60 to 90 days.

When the red indicator light on the front panel is illuminated, the most likely reason is that the pre-filter is clogged and needs to be replaced. Proceed as follows (Fig. 5):

1. Rock the green the power switch down to the OFF position.
2. Unplug the unit from the wall outlet.
3. Listen to make sure the blower wheel has stopped spinning, and remove the bottom front door.
4. Put on Personal Protective Equipment.
5. Slide the pre-filter out of the cabinet and immediately put it inside an approved containment bag. Dispose per facility guidelines for hazardous materials.
6. Replace the pre-filter with the same type and size (minimum MERV 7). The air-flow arrows on the filter **must** point up.

7. Replace the bottom front door.

8. Plug in the unit and rock the power switch up to the ON position.

The red indicator light should extinguish within a few seconds. If it does not, then the HEPA filter needs to be replaced.

#### HEPA Filter

The HEPA filter, when used in a negative air machine, is rated for approximately 40,000 hours of operation, or 4 years, under normal conditions and with recommended replacement of the pre-filter (air scrubber use will reduce filter life). If the red indicator light is illuminated, and did not extinguish after replacing the pre-filter, then the next step is to replace the main HEPA filter. For residential use, call your dealer to do this procedure. For healthcare facilities, follow these steps (Fig. 5):

1. Move the power switch to the OFF position.
2. Unplug the unit from the wall outlet.
3. Listen to make sure the blower wheel has stopped spinning. Lay the unit on its back. Remove both the upper and lower doors.
4. Put on Personal Protective Equipment.
5. Remove the pre-filter from the unit.
6. Use a 1/2-inch open-end or adjustable wrench to remove the two front bottom nuts from the all-thread rods on both sides.
7. Loosen, but do not remove, the back bottom nuts.
8. Slide the bottom HEPA filter supports down, and pull the two front all-thread rods upwards to get them out of the way of the filter removal.
9. Remove the HEPA filter and immediately put it inside an approved containment bag. Dispose per facility guidelines for hazardous materials.
10. Position the new HEPA filter into the unit with the gasket on the filter facing up, on the discharge side of the filter. Make sure the HEPA filter is centered and the edges align with the brackets on the top side and each side for a complete seal.
11. Re-install the bottom supports, all-thread rods, and attach the bottom nuts.
12. Tighten the nuts equally until the filter is held securely in place, and ensure the top HEPA filter gasket is significantly compressed against the mounting structure to assure no bypass air.
13. Inspect the filter for a complete and tight fit. Loosen the nuts and reposition if necessary.
14. Replace the pre-filter.
15. Replace the doors. Lift the unit into an upright position.



Fig. 5 – Filters

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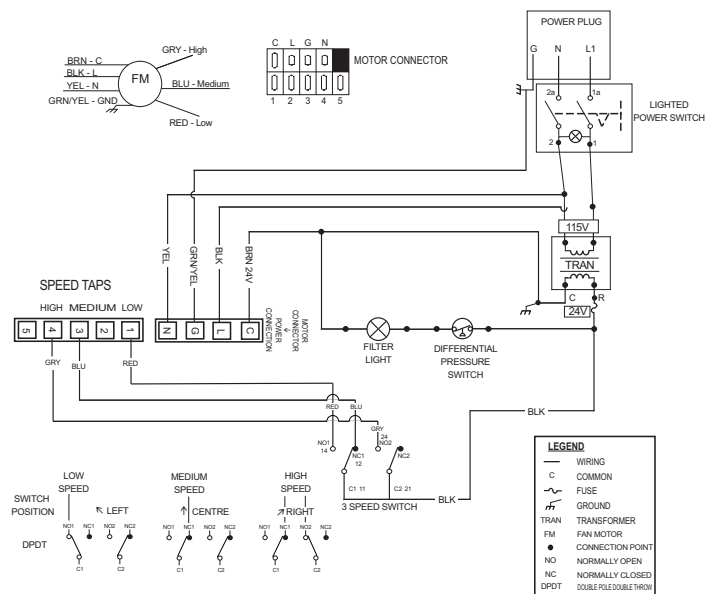


Fig. 8 – 006 and 015 Models Wiring Diagram

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## Parts

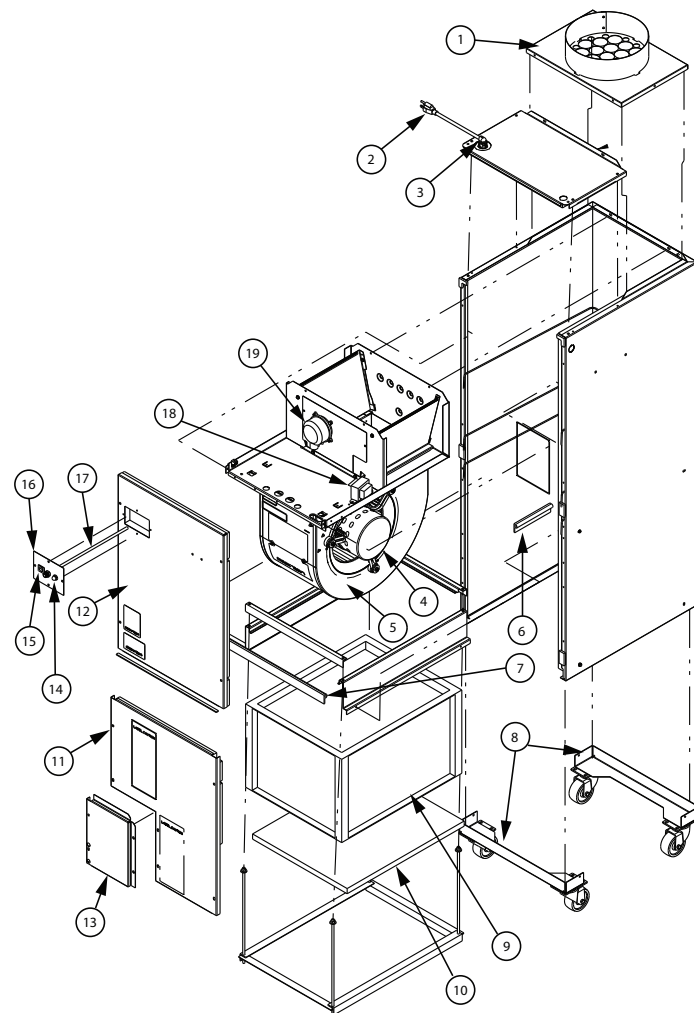


Fig. 9 – Exploded View

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Table 4 – Parts

Item #	Qty	Description	Part Number - Model Size		
			005	006	015
1	1	Discharge Transition Plate	346303-701		346303-702
2	1	Power Cord	346284-401		
3	1	Strain Relief	346294-401		
4	1	Motor	HD46AM126	HD46AM127 HD42AM120 HD42AQ120	HD52AM120 HD52AQ120
5	1	Blower Housing Assembly	342890-75103		342890-75105
6	2	Gasket, 6" (152 mm)	346295-402		
7	2	Gasket, 16" (408 mm) or 20" (506 mm)	346295-401		346295-403
8	2	Caster Assembly	346285-701		346285-702
9	1	HEPA Filter	346345-75101		346345-75102
10	1	Pre-filter, MERV 7	KH01AZ500		KH01AZ501
11	1	Lower Door Assembly	346279-701		346279-702
12	1	Upper Door Assembly	346277-701		346277-702
13	1	Door Filler Panel	346523-701		
14	1	Indicator, red	346299-401		
15	1	Power Switch, green, lighted	346300-401		
16	1	Control Panel Plate	346297-402	346297-403	
17	1	Pitot Tube	346301-401		
18	1	Transformer	346305-401		
19	1	Pressure Switch	HK06WD001		
(not shown)	1	3-Speed Rotary Switch	N/A	HR56ZQ001	
(not shown)	1	Pilot Tube Fitting	346289-401		
(not shown)	1	Wiring Harness	346304-701	346349-701	

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