

Operation and Maintenance Manual Carrier OptiClean™ Negative Air Machine Model FN1AAF



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

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

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.

About Your Negative Air Machine

The Carrier OptiClean™ negative air machine is a portable, minimum 500 CFM 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 Carrier 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, the machine can be used as an air "scrubber," pulling air in, removing many contaminants, and discharging cleaner air back into the room.

The Carrier OptiClean negative air machine has the following features:

- 99.97% efficient long-life HEPA filter removes particles as small as 0.3 microns
- Standard MERV 7 or higher pre-filter available locally
- Minimum 500 CFM
- Meets or exceeds ASHRAE Standard 170: Ventilation of Health Care Facilities
- Vertical design for smaller footprint compared to many competitors
- 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
- 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 duct included
- UL® Listed
- One year limited warranty
- Currently designed for commercial applications only

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. Remove the parts bags and/or box from the lower compartment.
2. Lay the unit on its back, as near as possible to its intended final location.
3. Attach the caster assemblies to the bottom of the unit (Fig. 2).
 - 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.
4. Use the included screws to attach the round-duct transition plate to the top of the unit (Fig. 4).
5. Use a compression clamp to attach 10-inch round flexible ducting (supplied by others) to the transition plate.
6. Carefully lift the unit to a vertical position on its casters. HINT: Lock the casters before lifting or tilting up the unit.
7. Move the unit in its final position and lock all four casters.
8. Run the flexible ducting as recommended by the mechanical plan and attach to a transition piece as necessary.
9. 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. Make sure the side bolts and nuts near each corner are tight and the HEPA filter is held securely in place. Make sure the HEPA filter seal around the top edge is in place.
10. Make sure the first-stage pre-filter is in place and not damaged.
11. Replace the top door over the blower, then the bottom front door.
12. Plug the unit into a grounded 115V outlet.



Fig. 2 – Casters and Round Duct Transition

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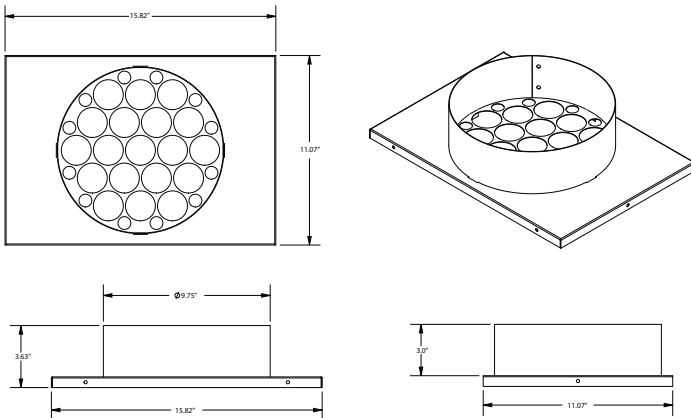


Fig. 3 – Duct Transition Details

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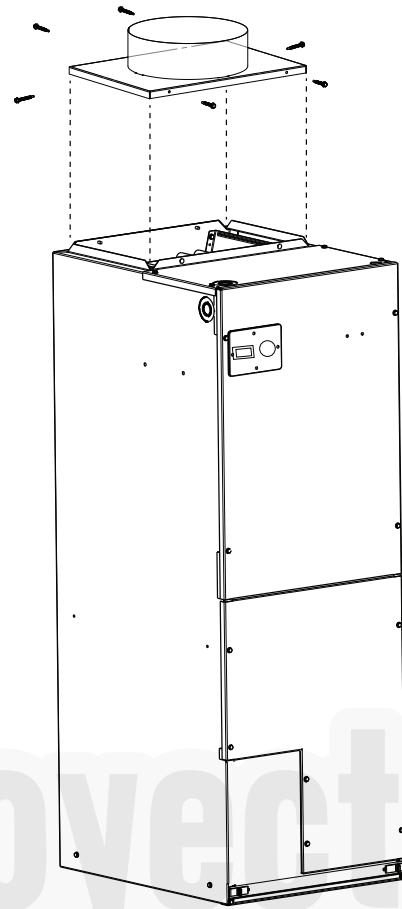


Fig. 4 – Duct Transition Installation

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Operating Instructions

IMPORTANT: Operate the unit upright on a level and stable surface.

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. It is a good idea to clean or sweep the floor around the unit to extend the life of the pre-filter.

- Locate the control panel on the front lower left (Fig. 5).
- Rock the green ON/OFF switch up to the ON position. It should illuminate. There may be a slight delay before air begins to move as the blower motor has a built-in operational delay.
- 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!



Fig. 5 – Control Panel

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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 or obstruction indicator is not illuminated
- unit operates without excessive vibration or unusual noises
- flexible exhaust ducting 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. The pre-filter should generally be replaced every 60 to 90 days.

 **CAUTION**

PERSONAL PROTECTION

If applicable, wear appropriate Personal Protective Equipment (gown, gloves, respirator, etc) when changing filters.

 **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.

Rotating blower wheel can cause serious injury.

Wear gloves when handling.

Pre-Filter

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. 6):

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. Slide the pre-filter out of the cabinet.
5. Replace the pre-filter with the same type and size (minimum MERV 7). Note the air-flow arrows on the filter and make sure they point up.
6. Replace the bottom front door.
7. 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 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. Do these steps (Fig. 6):

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, and remove the bottom front door.
4. Remove the pre-filter from the unit.
5. Use a 1/2-inch open-end or adjustable wrench to remove the bottom nuts from the all-thread bars on both sides (four nuts total).
6. Slide the bottom HEPA filter supports down, along with the filter, and out of the unit.
7. Remove the HEPA filter and immediately put it inside an approved containment bag. Dispose per facility guidelines for hazardous materials.
8. 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.
9. Re-install the bottom supports and attach the bottom nuts.
10. 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.
11. Inspect the filter for a complete and tight fit. Loosen the nuts and reposition if necessary.
12. Replace the pre-filter.
13. Replace the bottom front door.



Fig. 6 – Filters

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Troubleshooting

Before you request dealer service, check for these easily solved problems:

- Check your main electrical panel circuit breakers or fuses if the unit will not turn on.
- Make sure the unit is plugged in to a working 115V electrical outlet.
- Check for sufficient airflow. Filters should be clean and unobstructed.

If you need to contact your authorized dealer for troubleshooting and/or repairs, be sure to have the model and serial numbers of your equipment available.

Specifications

Table 1 – Electrical Specifications

| | |
|----------------|-----|
| Voltage | 115 |
| Hertz | 60 |
| Amps | 5.0 |

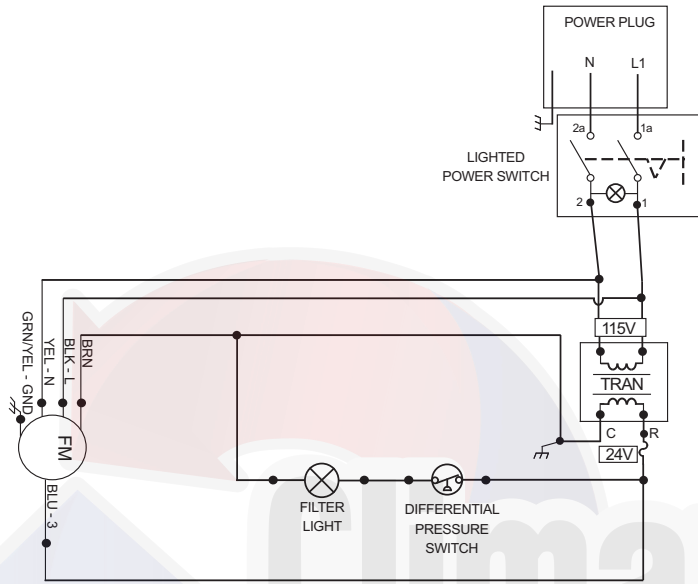


Fig. 7 – Wiring Diagram

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Parts

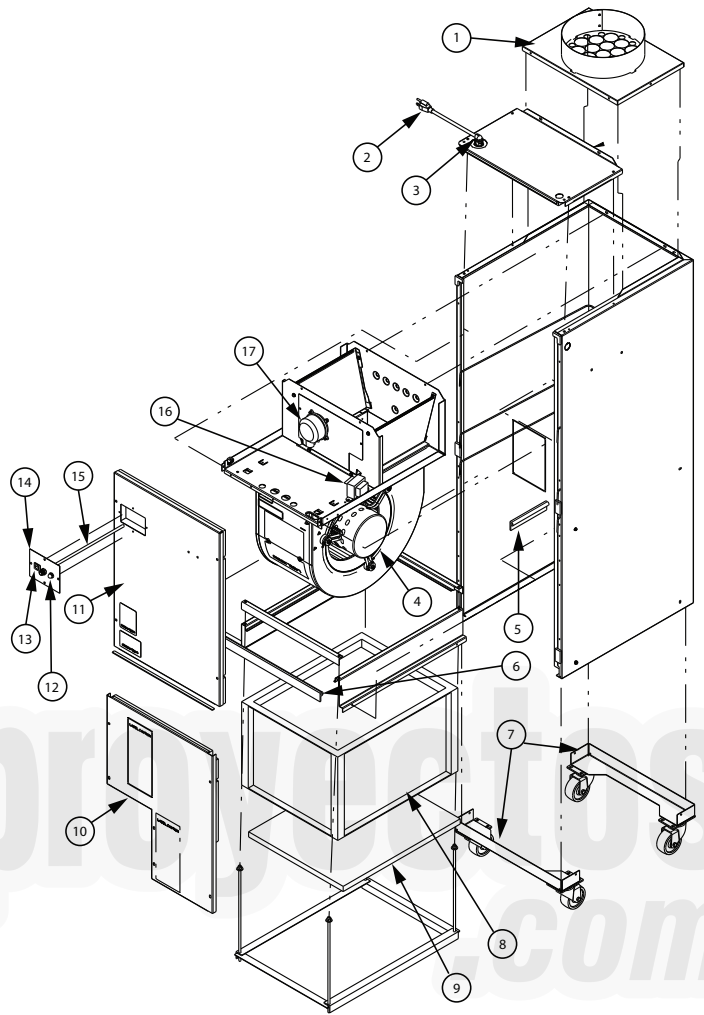


Fig. 8 – Exploded View

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Table 2 – Parts

| Item # | Part Number | Description | Qty |
|-------------|-------------|--|-----|
| 1 | 346303-401 | Discharge Transition Plate | 1 |
| 2 | 346284-401 | Power Cord | 1 |
| 3 | 346294-401 | Strain Relief | 1 |
| 4 | HD46AM126 | Motor | 1 |
| 5 | 346295-402 | Gasket, 6" (152 mm) | 1 |
| 6 | 346295-401 | Gasket, 18" (457 mm) | 1 |
| 7 | 346285-701 | Caster Assembly | 2 |
| 8 | KH01AZ600 | HEPA Filter | 1 |
| 9 | 346309-401 | Pre-filter, MERV 7 (available locally) | 1 |
| 10 | 346279-701 | Lower Door Assembly | 1 |
| 11 | 346277-701 | Upper Door Assembly | 1 |
| 12 | 346299-401 | Indicator, red | 1 |
| 13 | 346300-401 | Power Switch, green, lighted | 1 |
| 14 | 346297-701 | Control Panel Plate | 1 |
| 15 | 346301-401 | Pitot Tube | 1 |
| 16 | 346305-401 | Transformer | 1 |
| 17 | HK06WD001 | Pressure Switch | 1 |
| (not shown) | 346304-701 | Wiring Harness | 1 |