

FN1AAF

OptiClean™ Air Scrubber and Negative Air Machine

Operation and Maintenance Manual

NOTICE

IMPORTANT INFORMATION

Read all instructions and data in this manual before operating. **DO NOT** apply power or turn on until the outer packaging (plus the inside located parts box and cardboard under the filters) have been removed from the unit. See applicable “Assemble the Unit” Instructions herein. Additional information and video assembly instructions are available online at opticlean.carrier.com.



Fig. 1 – FN1AAF


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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
- Speed selector switch on 006 & 015 sizes for various air flow ranges
- 115V operation. 10-foot long power cord with strain relief
- 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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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. All equipment should be installed in accordance with accepted practices and unit Installation Instructions, and in compliance with all national and local codes. Power should be turned off when servicing or repairing electrical components. Extreme caution should be observed when troubleshooting electrical components with power on. Observe all warning notices posted on equipment and in instructions or manuals.

CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when servicing, and when handling parts.

WARNING

PERSONAL INJURY / 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 OptiClean™ Air Scrubber

The OptiClean™ uses highly efficient filters and a heavy duty, yet quiet, motor to pull the air in, remove over 99% of contaminants, and discharge cleaner air back into the room.

NOTE: While removing your unit from its packaging, inspect it carefully. If damage is noted, contact your shipping carrier and file a claim.

Tools Required

- Box cutter
- 5/16" (8 mm) socket or wrench
- Drill or powered driver

Assemble the Unit

1. Before removing the shipping straps, put the crated unit on its back. Use two persons if necessary.
2. Remove the straps, then remove the cardboard coverings and wooden skid.
3. Remove the bottom front door, then the top door over the blower section.
4. Inspect the HEPA filter and make sure it has not been dislodged or damaged during shipping, and:
 - the side bolts and nuts near each corner are tight and the HEPA filter is held securely in place
 - the seal around the top edge of the filter is in place
5. Remove the flat piece of cardboard from between the pre-filter and HEPA filter.
6. Make sure the pre-filter is in place and not damaged.
7. Remove the carton of parts from the lower section. You may need to tilt the carton to get it out.
8. Replace the top door over the blower, then the bottom front door.

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 2](#).

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

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

9. Attach the caster assemblies (ref [Fig. 2](#)) to the bottom of the unit.
 - a. Remove and retain the screws from the outer corners of the cabinet bottom.
 - b. Position the caster assembly along the front 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) A200233A

10. Use the included screws to attach the round or oval duct transition plate to the top of the unit ([Fig. 3](#)). An optional air diffuser (KFADG0101SML/LRG) is also available, which has its own installation instructions.
11. Carefully lift the unit to a vertical position on its casters.

HINT: Lock the casters before lifting or tilting up the unit.
12. Move the unit to its final position and lock all four casters.
13. Plug the unit into a grounded 115V outlet.

! 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

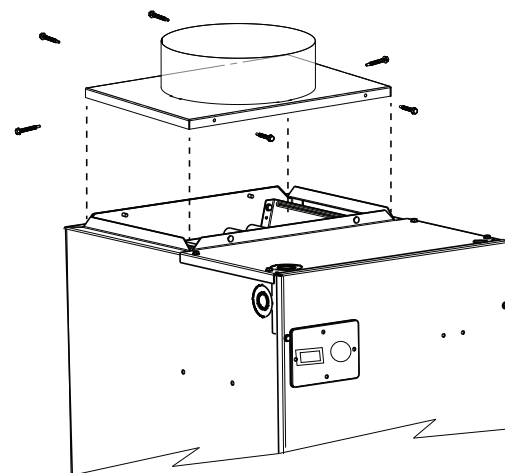


Fig. 3 – Typical Duct Transition Installation A200218A

About the OptiClean™ Negative Air Machine

In addition to being an Air Scrubber, the OptiClean™ is 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 via connected ducting. The resulting negative air pressure, or "vacuum effect," helps limit the spread of air-based contaminants into surrounding areas.

NOTE: While removing your unit from its packaging, inspect it carefully. If damage is noted, contact your shipping carrier and file a claim.

Tools Required

- Box cutter
- 5/16" (8 mm) socket or wrench
- Drill or powered driver

Assemble the Unit

1. Before removing the shipping straps, put the crated unit on its back. Use two persons if necessary.
2. Remove the straps, then remove the cardboard coverings and wooden skid.
3. Remove the bottom front door, then the top door over the blower section.
4. Inspect the HEPA filter and make sure it has not been dislodged or damaged during shipping, and:
 - the side bolts and nuts near each corner are tight and the HEPA filter is held securely in place
 - the seal around the top edge of the filter is in place
5. Remove the flat piece of cardboard from between the pre-filter and HEPA filter.
6. Make sure the pre-filter is in place and not damaged.
7. Remove the carton of parts from the lower section. You may need to tilt the carton to get it out.
8. Replace the top door over the blower, then the bottom front door.

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 2](#).

Table 2 – Horizontal Configuration Pre-Filters (cartons of 12)

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

9. Attach the caster assemblies ([Fig. 4](#)) 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 front 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. 4 – Boxed Casters and Duct Transition (10-inch round shown) A200233A

10. Use the included screws to attach the round or oval duct transition plate to the top of the unit ([Fig. 5](#)).
11. Carefully lift the unit to a vertical position on its casters.

HINT: Lock the casters before lifting or tilting up the unit.
12. Move the unit to its final position and lock all four casters.
13. 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.
14. 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.
15. Plug the unit into a grounded 115V outlet.

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

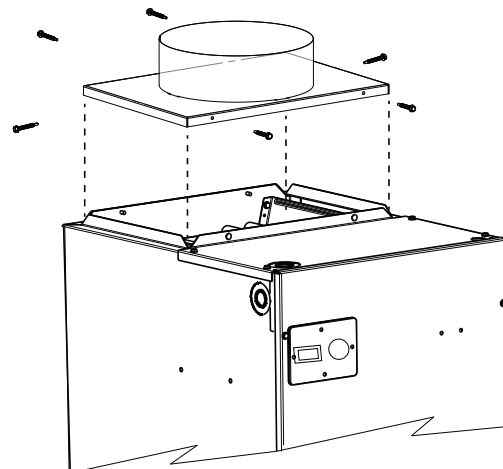


Fig. 5 – Typical Duct Transition Installation A200218A

General 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. 6).
- 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 plate (and diffuser or ducting if applicable), and the unit is not shifting position. Make sure the casters are locked!

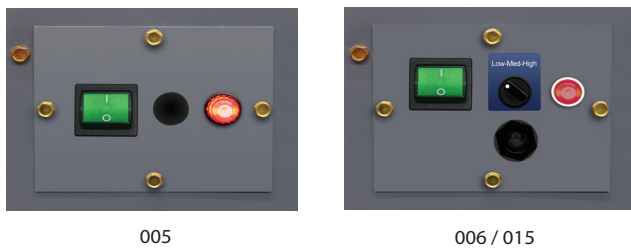


Fig. 6 – Control Panels

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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 has a procedure in place for replacing filters, follow your procedure. If guidance is needed, use 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. 7):

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. 7):

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. 7 – Filters

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Airflow Adjustments

! 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.

For models 006 and 015, if you desire different airflows from the factory-set Low, Medium, and High (taps 1, 3, and 4), do these steps:

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 **loosen** the screws attaching the bottom door, but do **not** remove.
4. Remove the screws attaching the upper door and allow it to gently swing down and rest, supported by the wire harness attached to the front panel.
5. Locate the three blower speed tap wires (red, blue, and gray) attached to the blower motor (Fig. 8).

6. Identify the correct Motor Tap for desired airflows and connect the wires according to Table 3.
 - The Red motor lead is energized when switch is set to LOW, the Blue motor lead is energized when switch is set to MED.

NOTE: The Blue and Gray motor leads are energized when switch is set to HIGH. The factory HIGH speed setting is tap 4; this is assuming the product will be operated in Scrubber mode with an accessory diffuser. If this is not the case, the Gray lead should be moved to tap 5 to assure that red filter/obstruction indicator is properly detecting filter condition.

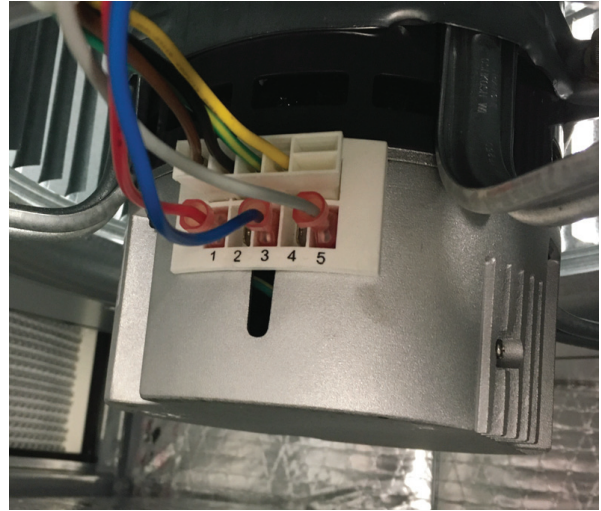


Fig. 8 – Motor Taps

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7. Replace the top door screws.
8. Tighten the bottom door screws.

Table 3 – Blower Configuration

Switch Setting	Motor Lead	Motor Tap Options
LOW	Red	1
		2
		3
Switch Setting	Motor Lead	Motor Tap Options
MED	Blue	2
		3
		4
Switch Setting	Motor Lead	Motor Tap Options
HIGH	Gray	4 or 5

Altitude Adjustments

Depending on your location, you may see up to 10% increase of measured airflow at higher altitudes. To compensate, you can change motor taps for alternate airflows [Airflow Adjustments on p5](#).

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 4 – Electrical Specifications

	005 Model	006 Model	015 Model
Voltage		115	
Hertz		60	
Horsepower HP	3/4	1/3 or 3/4*	1
Amps	5.0		
Speeds†	1	3	
Nominal CFM	500	200 / 400 / 600	500 / 1000 / 1500

*. 006 model may have either a 1/3 or 3/4 HP motor. Both deliver equivalent airflow and amp draw.

†. 005 model has a green lighted power switch only; wired to tap 5 from the factory.

006 and 015 models have the green lighted power switch, plus 3-speed rotary switch; wired to taps 1, 3, and 5 from the factory. Taps 2 and 4 can be field-wired for alternative CFMs. See [Airflow Adjustments on p5](#)

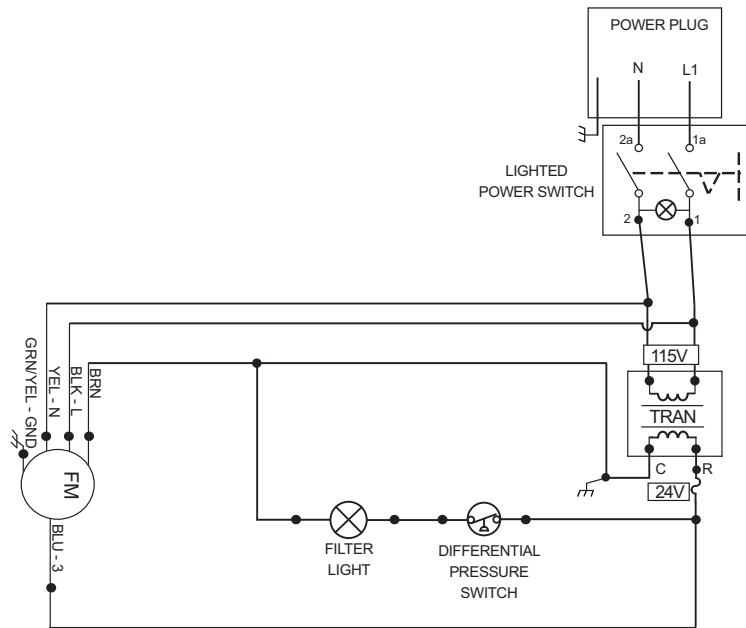


Fig. 9 – 005 Model Wiring Diagram

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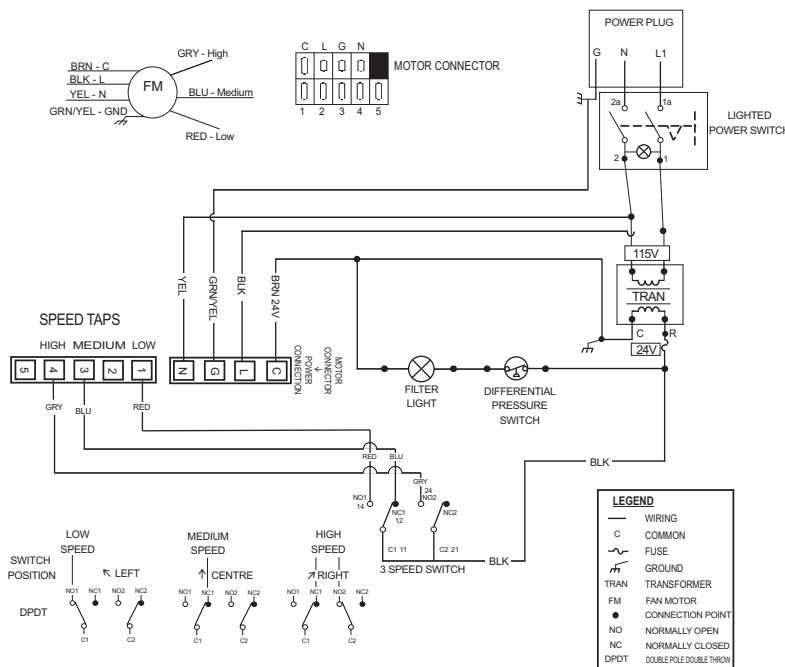


Fig. 10 – 006 and 015 Models Wiring Diagram

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Parts

Table 5 – Parts

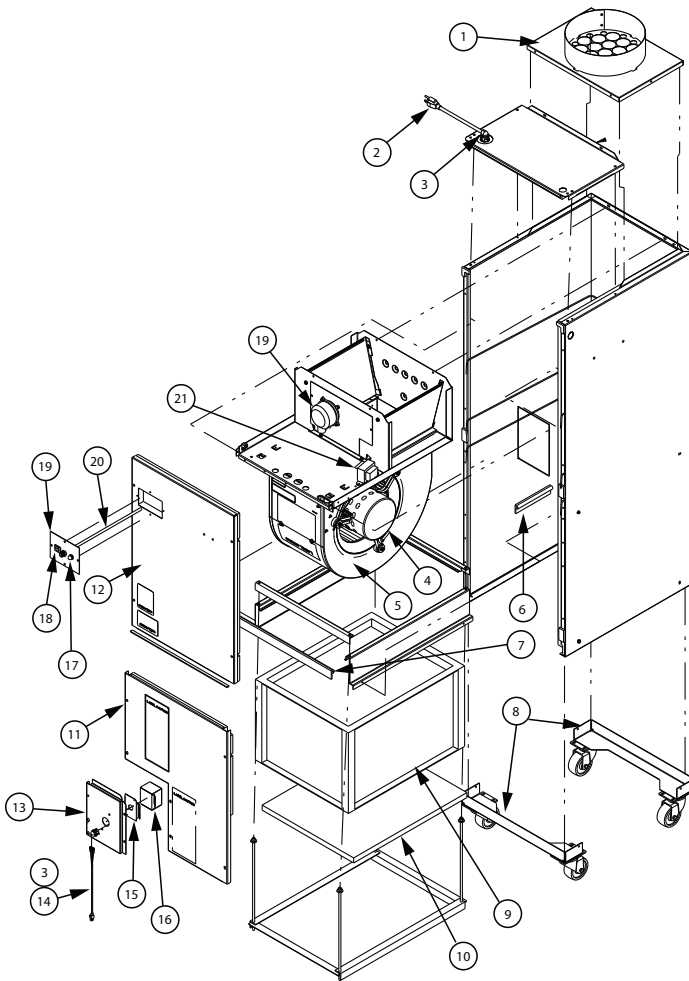


Fig. 11 – Exploded View

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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	N/A	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	N/A	346523-702	346523-701 346523-702†
14	1	Power Cord	N/A	346572-401	
15	1	Junction Box	N/A	346661-401	
16	1	J-Box Cover	N/A	346662-401	
17	1	Indicator, red	346299-401		
18	1	Power Switch, green, lighted	346300-401		
19	1	Control Panel Plate	346297-402	346297-403	
20	1	Pitot Tube	346301-401		
21	1	Transformer	346305-401		
22	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	

*. Not on 015 models manufactured after Sep 2020.

†. Door with hole for power cord (manufactured after Sep 2020).

Notes: