

ION4K-ICA

INSTRUCTION MANUAL



Read Manual Before Operating Machine

406513 Rev B

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MANUFACTURER INFORMATION

CONTACT INFORMATION

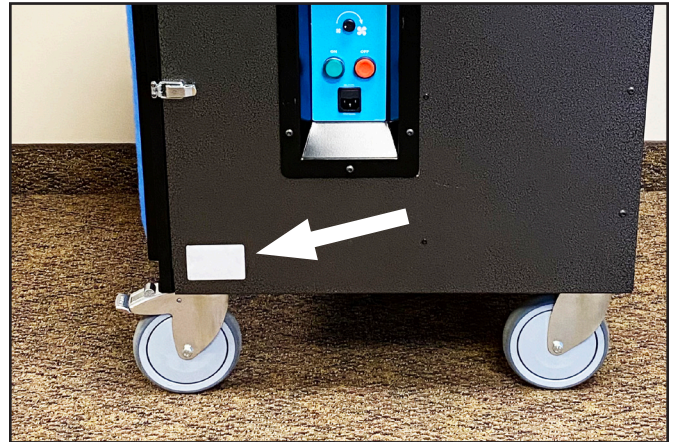
Contact National Flooring Equipment (NFE) for customer support:

National Flooring Equipment, Inc.

9250 Xylon Avenue North
Minneapolis, MN 55445
Tel: (800) 245-0267
Fax: (800) 648-7124
nationalequipmentdirect.com
info@nationalequipment.com

SERIAL NUMBER

When contacting NFE, always provide the serial number of the machine. The serial number label is located on the side panel below the control panel.



SPECIFICATIONS

PRODUCT DESCRIPTION

The Ion4K-ICA ionizer is a portable machine designed to electronically charge the air in the room, driving dust and other contaminants rapidly to the ground in a manner that is safe for the user and the environment.

The ionizer utilizes a three-stage filtering system. The primary pre-filter captures most of the dust and contaminants. The secondary pre-filter captures dust and contaminants able to penetrate the primary pre-filter. The box filter captures dust and contaminants able to penetrate the secondary pre-filter.

MACHINE SPECIFICATIONS

Width	20.8"	53 cm
Length	25.6"	65 cm
Height	31.9"	81 cm
Weight	124 lbs	56 kg
Input Power	120V / 60 Hz	
Power Consumption (max.)	175W	
Airflow (max.)	1430 CFM	2430 m ³ /hr
Sound (10 ft away)	58-64 dBA	
Effective in This Volume of Space	Up to 53,000 ft ³	Up to 1,500 m ³

SAFETY

SAFETY FIRST!

Look for the safety alert symbol. This symbol is used throughout the manual and on the labels of the machine to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read these instructions before you attempt to operate the machine.

DANGER

Identifies an immediate hazard which, if not avoided, will result in death or serious injury.

WARNING

Identifies a potential hazard which, if not avoided, could result in death or serious injury.

CAUTION

Identifies a potential hazard which, if not avoided, could result in minor or moderate injury and/or could result in damage to equipment.

IMPORTANT:

Indicates equipment or property damage could result if instructions are not followed.

NOTE:

Gives helpful information.

Read and understand this safety section carefully before operating the machine.

BEFORE OPERATION

1. Carefully read and understand this manual before operating or performing maintenance on the machine. Keep the manual with the machine at all times. If your manual is lost or damaged, contact National Flooring Equipment (NFE) for a replacement.



2. Do not allow anyone to use this machine until they have read and understood this manual. Know your equipment and its limitations. Personnel must be properly trained before operating this machine.
3. Safety labels carry important information. Obey the danger, warning and caution labels attached to the machine. If unreadable or missing, contact NFE for a replacement.

ELECTRICAL CORDS

1. Ensure the cord type is suitable for the application and location. If you are unsure about your cord type, consult a qualified electrical professional or electrician.
2. To reduce the risk of electrical shock, the machine is equipped with a grounding-type plug and must be plugged into an appropriate outlet, one which is properly installed and grounded in accordance with all codes and ordinances. Do NOT modify the plug provided with the machine. Never remove the grounding prong from the plug.
3. Do not remove, bend or modify any metal prongs or pins of the plug. Modifications to power cords and/or plugs may result in injury and/or machine damage.
4. Fully insert plug into outlet.
5. Do not use excessive force to make connections.
6. Never unplug by pulling the cord from the outlet. Pull the plug rather than the cord to reduce the risk of damage.
7. Regularly examine your extension cord and ensure it is in good electrical condition. Never use a damaged cord—either replace it or have it repaired by a qualified person.
8. Protect your extension cords from sharp objects, excessive heat and damp or wet areas. Keep the cord away from oil, cutting edges and moving parts.
9. Do not drive, drag or place objects over cord.

10. Avoid overheating. Uncoil cord and do not cover it with any material.
11. Be sure machine is turned off before plugging in to avoid accidental starting. Do not use machine if the power switch does not turn the machine on and off.
12. Make sure the machine is not running before disconnecting cord.
13. Unplug the machine when not in use and before performing maintenance.
14. Extension cords should be sized appropriately to reduce the risk of damage, fire or reduced performance. For the Ion4K-ICA ionizer:
 - Use a cord size of 16 AWG (1.5 mm²) for lengths up to 150 ft (45 m).
 - Use a cord size of 14 AWG (2.5 mm²) for lengths greater than 150 ft (45 m).

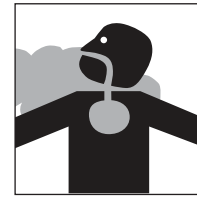
OPERATION

1. Avoid use in dangerous environments. Do not use in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials). Remove materials or debris that may be ignited by sparks.
2. For use indoors. Do not use in rain, damp or wet locations.
3. Never insert fingers into the exit panel or filter door as possible injury could result.
4. Always position the machine on a flat level surface to prevent machine from tipping over during use.
5. Lock the casters to prevent unintended rolling.
6. Always disconnect the machine from power before before checking filters to prevent accidental starting or electric shock.
7. Never operate the machine without filters installed. Filters protect the high voltage ionizer system from contaminants.

MAINTENANCE

1. Before performing maintenance, always position the machine on a flat level surface to prevent the machine from tipping over.
2. Lock the casters to prevent unintended rolling.
3. Always disconnect the machine from power before performing maintenance or repairs to prevent accidental starting or electric shock.

4. Replacing the filters can release dust that may be hazardous to your health. Always wear a safety mask, eye protection and safety gloves.



5. Use only NFE-approved parts.
6. Do not permanently remove any component or safety device when performing maintenance on the machine.
7. All service, repair and troubleshooting of the machine (other than replacing the filters) should only be performed by an authorized service technician. Do not modify the machine without authorization from NFE.
8. Use proper cleaning agents. Ensure that all cleaning rags are fiber-free. Do not use any aggressive cleaning products.
 - Never use compressed air to clean dust from the machine.
9. Waste material
 - Dispose of waste material properly to avoid pollution and contamination of the environment.
 - Consult local regulations and codes when disposing of filters and any other potentially harmful and hazardous materials or substances.

SAFETY LABELS

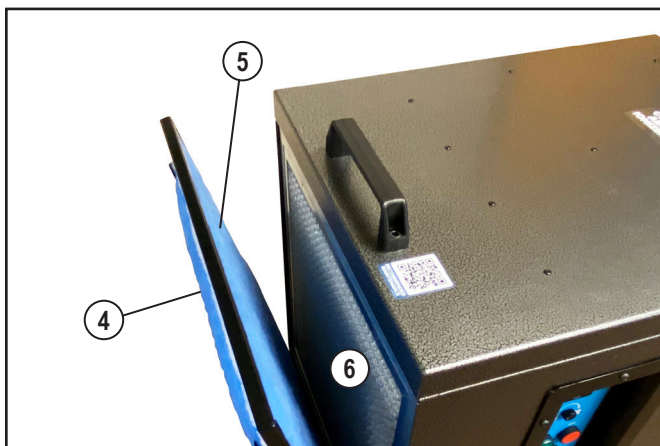


High Voltage Warning

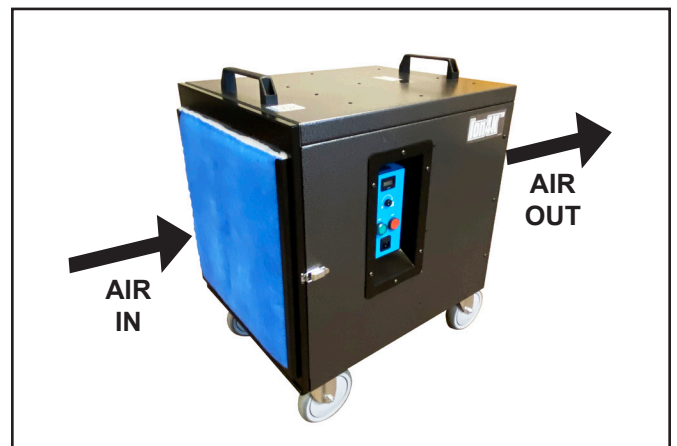
MACHINE OVERVIEW



- (1) Control panel
- (2) Pull/lift handle
- (3) Locking caster
- (4) Primary pre-filter
- (5) Secondary pre-filter
- (6) Box filter



FILTERS



AIR FLOW

CONTROL PANEL



[1] ON Button

Push to turn on the machine. The button light will light up.

[2] OFF Button

Push to turn off the machine. The ON button light will go out.

[3] Fan Speed Control

Turn the fan speed control knob to adjust air flow.

[4] Hour Meter

Displays operating hours.

[5] Recessed Plug

Accepts the female end of the power cord.

[6] Fuse Drawer

Holds the primary fuse and spare fuse.

OPERATION

⚠ WARNING

To avoid personal injury or death:

- Avoid use in dangerous environments. Do not use in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials).
- Remove materials or debris that may be ignited by sparks.
- Do not use in rain, damp or wet locations.

⚠ WARNING

To avoid personal injury:

- Be sure to position the machine on a flat level surface to prevent the machine from tipping over during use.
- Always lock the casters to prevent unintended rolling.

IMPORTANT:

- Do not block the machine's air flow. Blocking the air inlet or exit impedes air flow which reduces machine performance. Allow space around the machine for air to flow freely during operation.
- Do not place the machine in a corner.

CHECKING FILTERS

⚠ WARNING

To avoid personal injury:

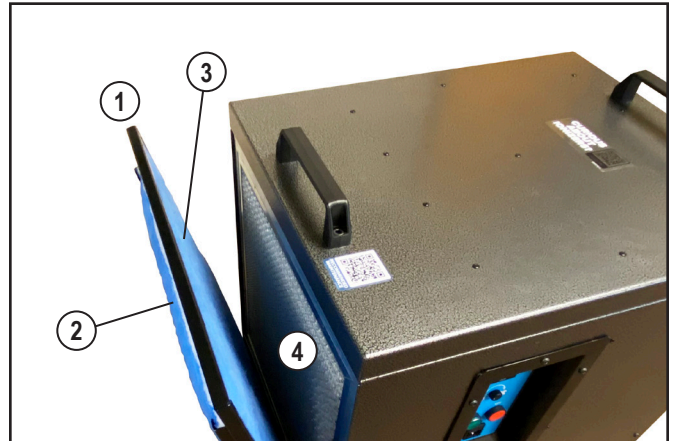
- Before checking filters, always turn off the machine and disconnect from power to prevent accidental starting or electric shock.

Check the condition of the filters daily. Dirty filters impede air flow which reduces machine performance. Replace the filters as often as necessary to maintain sufficient air flow through the machine. See "Replacing Filters" section.

- Replace damaged filters before use.
- Never operate the machine without the filters installed. The filters protect the high voltage ionizer system from contaminants.

NOTE:

- To access the secondary pre-filter and box filter, remove the filter door by releasing the latches on each side.



- (1) Filter door
- (2) Primary pre-filter
- (3) Secondary pre-filter
- (4) Box filter

OPERATING THE MACHINE

1. Strategically position the machine to generate optimal airflow circulation.
2. Lock the casters to prevent unintended rolling.
3. Insert the female end of the power cord into the recessed plug on the control panel. Plug the male end of the power cord into an outlet.
4. Push the ON button to start the machine.
5. Adjust the fan speed to achieve the desired air flow.

NOTE:

- After pushing the ON button or adjusting the fan speed there is a normal delay of several seconds before the fan comes up to speed.
6. To turn off the machine push the OFF button.

WARNING

To avoid personal injury:

- Before performing maintenance, always turn off the machine and disconnect from power to prevent accidental starting or electric shock.

REPLACING FILTERS

WARNING

To avoid personal injury:

- Replacing the filters can release dust that may be hazardous to your health. Always wear a safety mask, eye protection and safety gloves.

IMPORTANT:

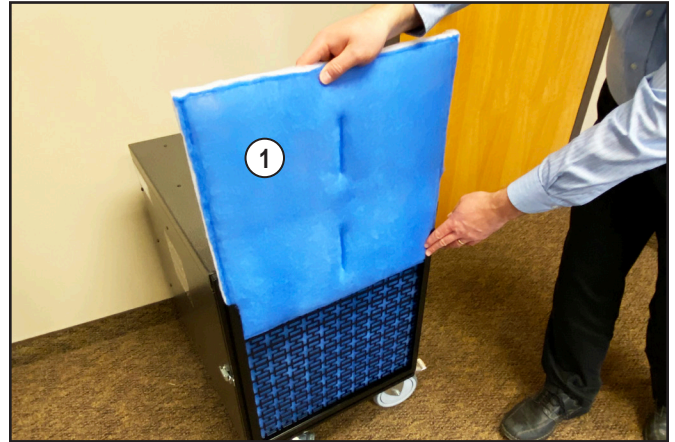
- How often the filters need replacing depends on the work environment. When decreased machine performance is noticed due to reduced air flow, the filters should be replaced.

■ Pre-Filters

- Depending on the amount of dust in the environment, the pre-filters may need to be replaced after 1-2 weeks of use.
- Replacing the pre-filters frequently helps to extend the life of the box filter.
- NFE recommends keeping a minimum of four pre-filters (of each type) on hand to replace during operation as they clog with dust.

◆ Primary Pre-Filter

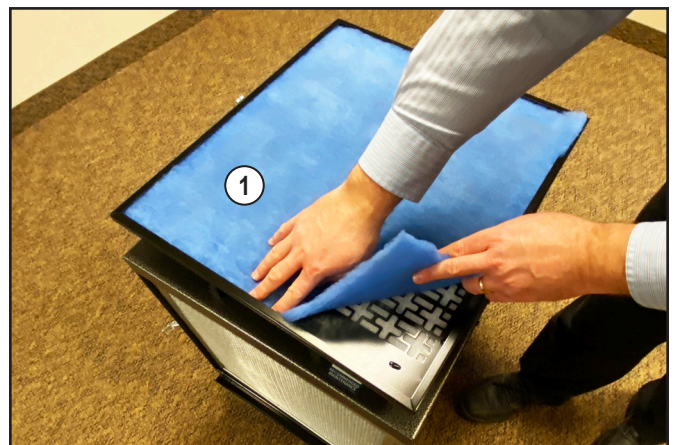
1. Remove the dirty primary pre-filter from the filter door and dispose of according to local regulations.
2. Install the new filter with the blue side facing outward and oriented as shown.



(1) Primary pre-filter

◆ Secondary Pre-Filter

1. To access the secondary pre-filter, remove the filter door by releasing the latches on each side.
2. Remove the dirty secondary pre-filter from the filter door and dispose of according to local regulations.
3. Install the new filter.
4. Replace the filter door.



(1) Secondary pre-filter

MAINTENANCE

■ Box Filter

- Depending on use and dust conditions, the box filter must be replaced a minimum of every 6 months.
- To access the box filter, remove the filter door by releasing the latches on each side.
 - Remove the dirty box filter from the machine and dispose of according to local regulations.
 - Install the new filter.
 - Make sure the air flow arrow on the filter is pointing towards the inside of the machine as shown.
 - Replace the filter door.



(1) Box filter

CLEANING THE MACHINE

Routinely clean any dust and dirt from the exterior of the machine. Use proper cleaning agents and ensure that all cleaning rags are fiber-free. Do not use any aggressive cleaning products. Dust can be removed from the chassis with a HEPA filtered vacuum cleaner.

WARNING

To avoid personal injury:

- Never use compressed air to clean dust from the machine.

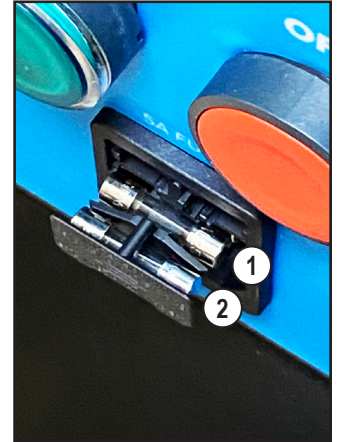
REPLACING FUSE

- Using a flat blade screwdriver or similar tool, pry open the fuse drawer.
- Remove the primary fuse and replace with a new one.
- Push the fuse drawer close.

Part No.	Description
406462	Fuse, 5A, 5x20mm, Time Delay



Pry open fuse drawer.



(1) Primary fuse
(2) Spare fuse

RECOMMENDED SPARE PARTS

NFE recommends keeping the following parts on hand to minimize machine downtime.

Part No.	Description
406386	Pre-Filter, Panel, MERV8, Polyester, 18.62 x 18.62
406385	Pre-Filter, MERV8, Polyester, 19.50 x 22.38
406465	Filter, Box, 20x20x6, MERV14

TROUBLESHOOTING GUIDE

WARNING

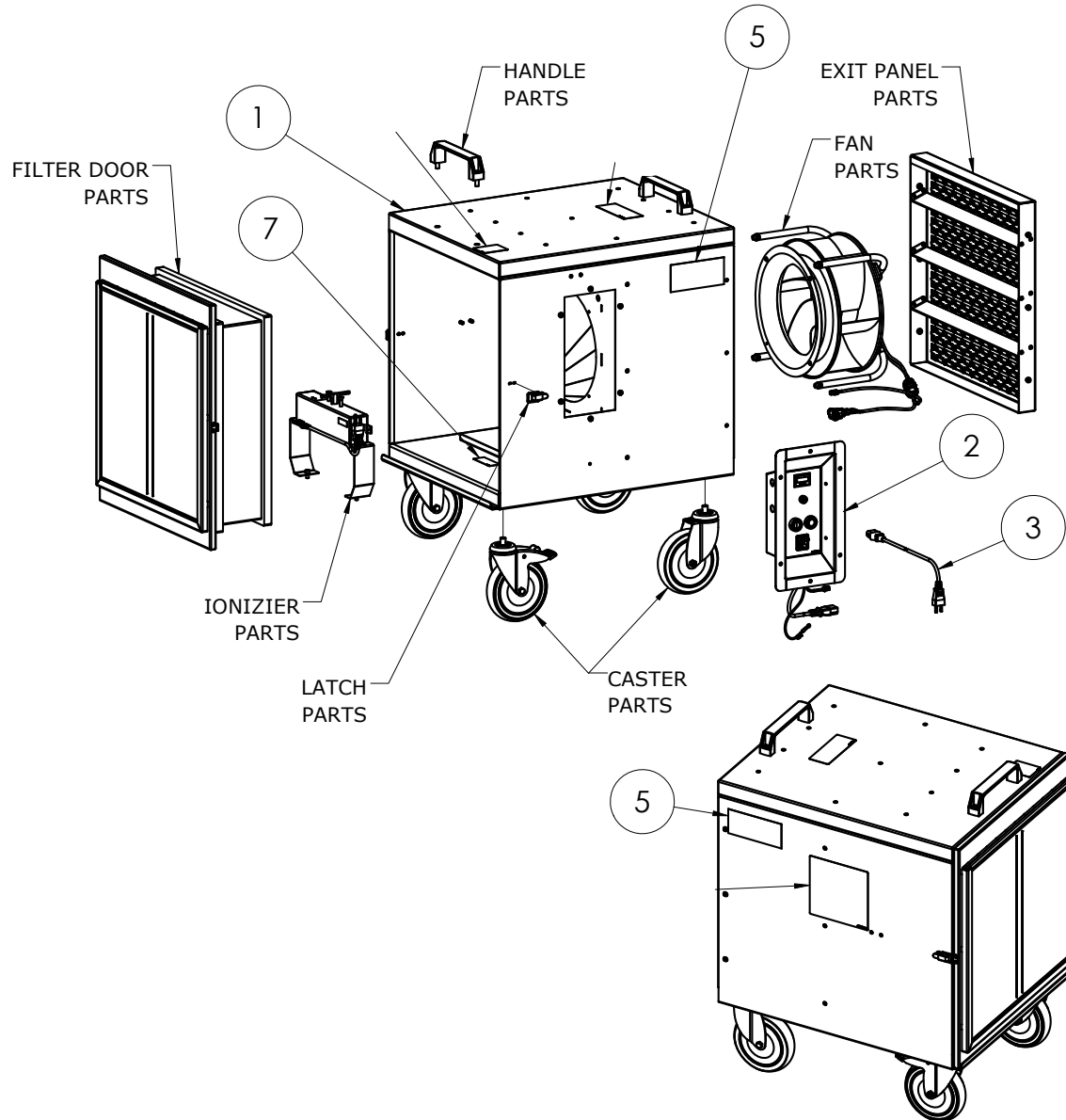
To avoid personal injury:

- Before performing maintenance, always turn off the machine and disconnect from power to prevent accidental starting or electric shock.

PROBLEM	CAUSE	SOLUTION
Machine does not start after pushing the ON button.	No power to machine	<ul style="list-style-type: none"> • Ensure machine is plugged in. • Ensure circuit breaker for the power source has not been tripped.
	Blown fuse	<ul style="list-style-type: none"> • Check fuse on control panel and replace if needed.
Reduced performance	Machine is turned off.	<ul style="list-style-type: none"> • Push ON button.
	Fan speed is too low.	<ul style="list-style-type: none"> • Increase fan speed.
	Dirty or damaged filters	<ul style="list-style-type: none"> • Check filters and replace if needed.
	Box filter is installed backwards.	<ul style="list-style-type: none"> • Ensure the air flow arrow on the filter is pointing towards the inside of the machine.
	Air flow is blocked.	<ul style="list-style-type: none"> • Ensure nothing is blocking the air inlet or exit of the machine. Reposition the machine if needed.
Fan does not immediately come up to speed	Normal operation	<ul style="list-style-type: none"> • After pushing the ON button or adjusting the fan speed there is a normal delay of several seconds before the fan comes up to speed.
Fan motor making an unusual noise.		<ul style="list-style-type: none"> • Turn off immediately and contact NFE for service.
Other problems		<ul style="list-style-type: none"> • Contact NFE for service.

PARTS LISTS

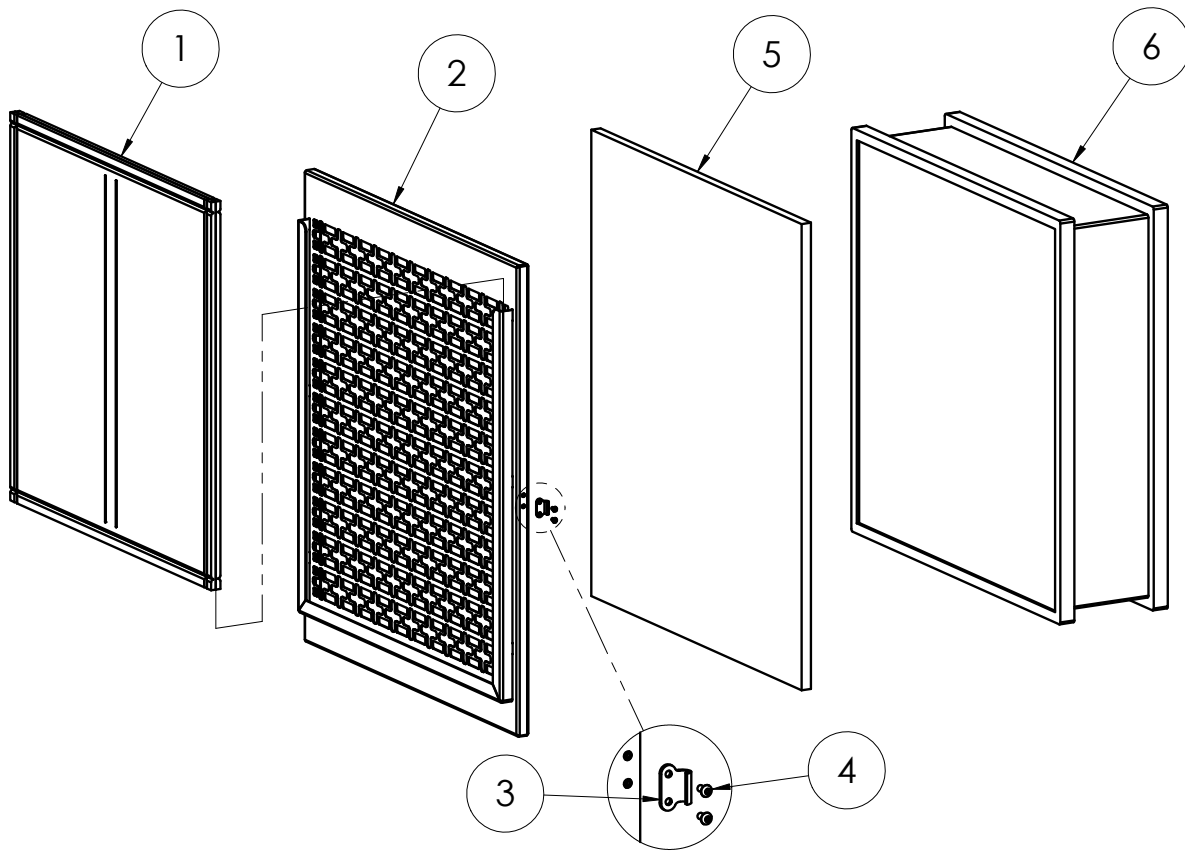
OVERALL MACHINE



Item No.	Part No.	Description	Qty.
1	406330	Assembly, Cabinet	1
2	406363	Assembly, Electrical Panel, Ionizer	1
3	406464	Cord, Power, SJT, 14/3, NEMA 5-15 TO C-13, Black, 12ft	1
4*	406466	Plug, Round, Dome, 13/16, Poly	1
5	404789	Label, Ion4K	2
7	406493	Label, Warning, High Voltage	1

*Not shown

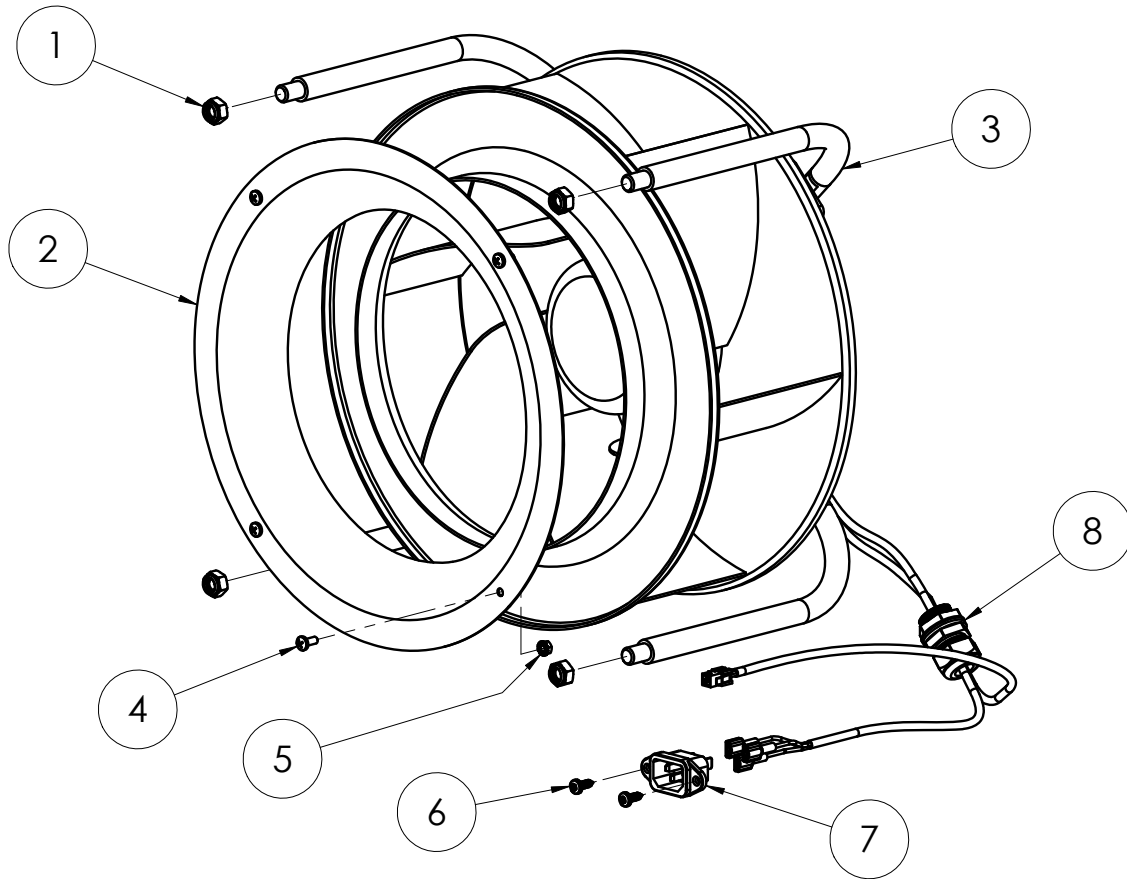
FILTER DOOR



Item No.	Part No.	Description	Qty.
1	406386	Pre-Filter, Panel, MERV8, Polyester, 18.62 x 18.62	1
2	406331	Weldment, Door, Prefilter	1
3	406447	Strike, Latch, Draw	2
4	406449	Screw, Button Head Cap, M3-0.5x6, Black Oxide	4
5	406385	Pre-Filter, MERV8, Polyester, 19.50 x 22.38	1
6	406465	Filter, Box, 20x20x6, MERV14	1

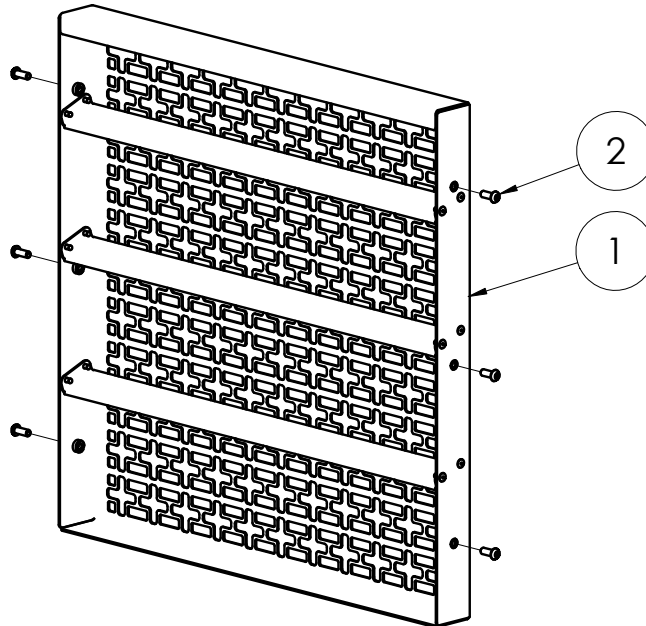
PARTS LISTS

FAN



Item No.	Part No.	Description	Qty.
1	401509	Nut, Hex, Nylon Insert, M8-1.25, Clear Zinc	4
2	406532	Ring, Inlet, Fan, Ionizer	1
3	406399	Assembly, Fan, Wired	1
4	403075	Screw, Pan Head Machine, M4X0.7 - 10mm	4
5	403281	Nut, Keps, M4-0.7, Clear Zinc	4
6	406527	Screw, Torx Pan Head, #8 x 1/2, Type AB	2
7	403195	Inlet, IEC C14, Flanged, 250V, 15A	1
8	404184	Strain Relief, M20, Straight, 6-12mm ID	1

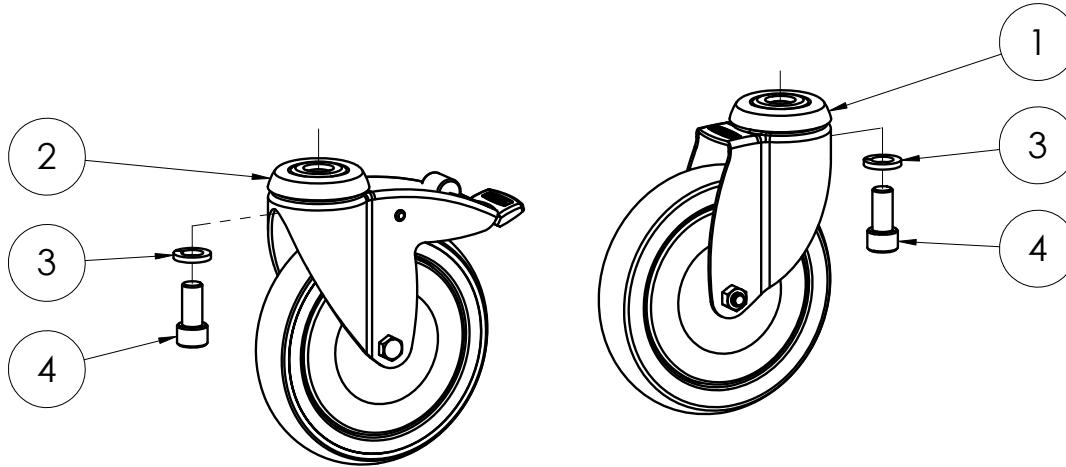
EXIT PANEL



Item No.	Part No.	Description	Qty.
1	406334	Assembly, Panel, Exit	1
2	406533	Screw, Button Head Cap, M6x1.0 x 16, Black Oxide	6

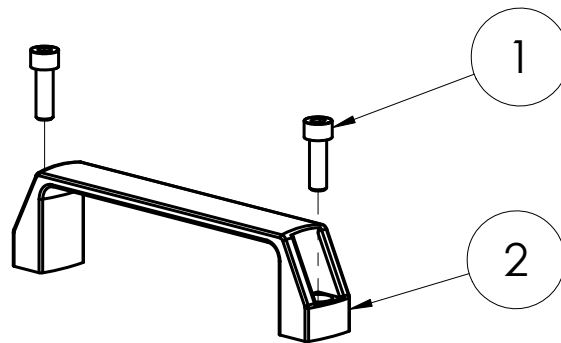
PARTS LISTS

CASTERS



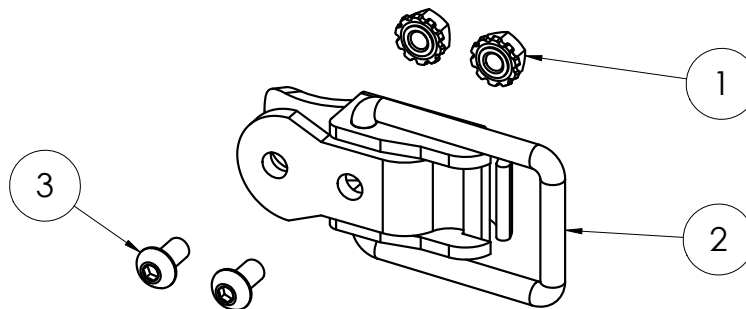
Item No.	Part No.	Description	Qty.
1	406481	Caster Assy, Swivel, 6", 13mm Hole-mount, 70A	2
2	406482	Caster Assy, Swivel, 6", Hole-mount, Locking, 70A	2
3	73403	Washer, Split lock 1/2	4
4	406508	Screw, Socket Head Cap, M12-1.75x25, Clear Zinc	4

HANDLE



Item No.	Part No.	Description	Qty.
1	401848	Screw, Socket Head Cap, M8-1.25x25, Black Oxide	2
2	406407	Handle, Pull, Plastic, Black, 1-15/16 x 7-3/4	1

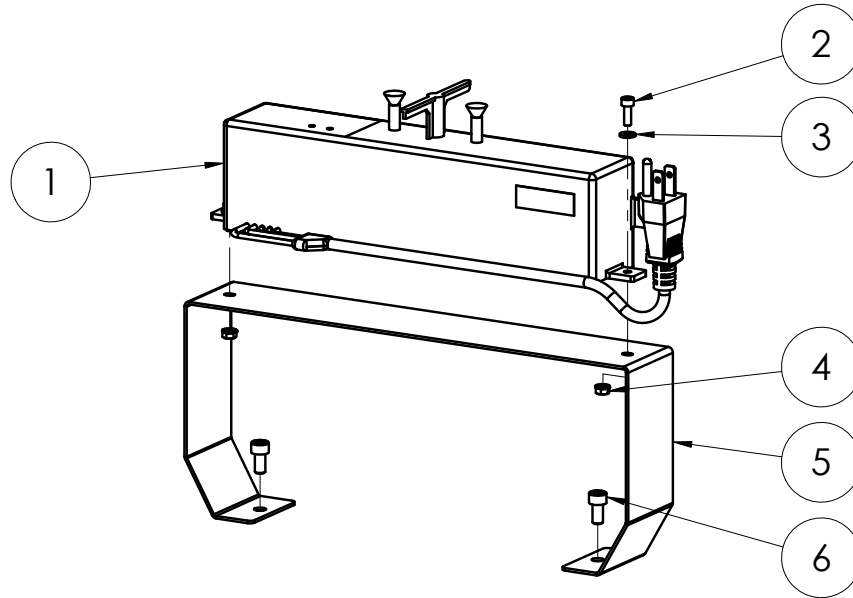
LATCH



Item No.	Part No.	Description	Qty.
1	404310	Nut, Keps, M3x0.5, Clear Zinc	2
2	406406	Latch, Draw, Overcenter, 15/16 x 2-5/16	1
3	406449	Screw, Button Head Cap, M3-0.5x6, Black Oxide	2

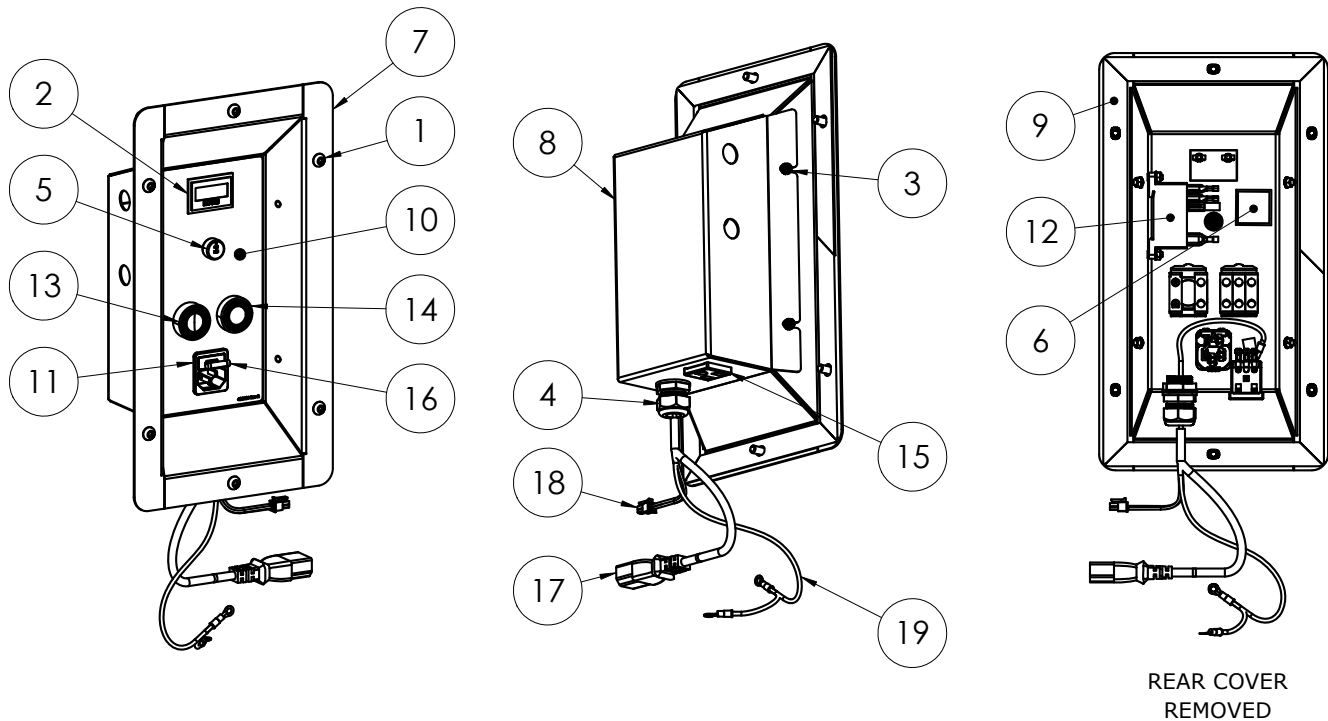
PARTS LISTS

IONIZER



Item No.	Part No.	Description	Qty.
1	406617	Assembly, Wired, Ionizer System, FC-48	1
2	401653	Screw, Socket Head Cap, M4-0.7 x 12	2
3	401326	Washer, Flat, M4, Clear Zinc	2
4	403281	Nut, Keps, M4-0.7, Clear Zinc	2
5	406615	Bracket, Riser, Mount, Ionizer	1
6	401652	Screw, Socket Head Cap, M6-1.0 x 12, Black Oxide	2

CONTROL PANEL 406363

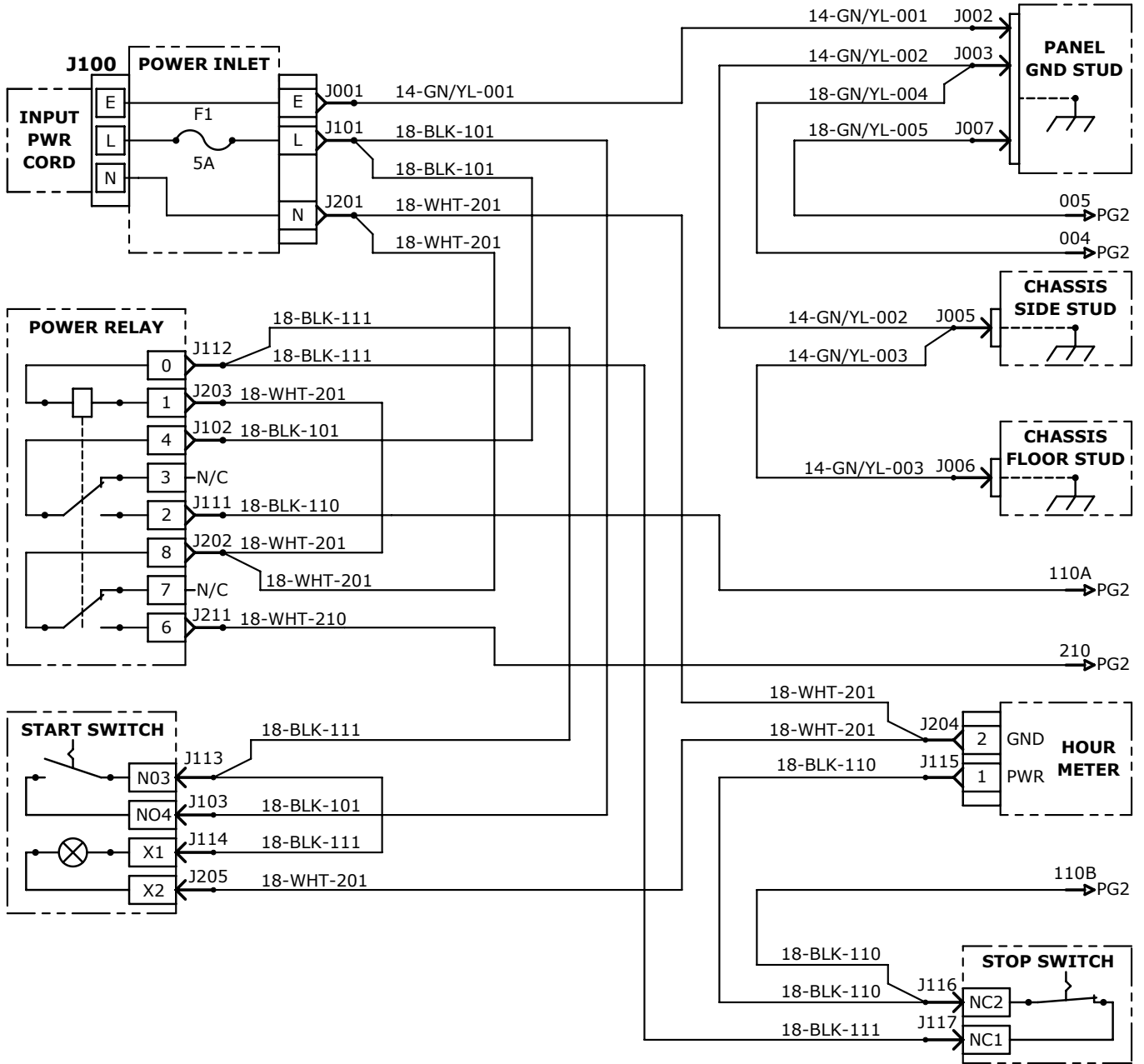


Item No.	Part No.	Description	Qty.
1	405257	Screw, Button Head Cap, M6x1.0 x12, Black Oxide	6
2	403253	Meter, Hour, Digital, 20-300VAC, 10-300VDC, Snap-on	1
3	403281	Nut, Keps, M4-0.7, Clear Zinc	7
4	404184	Strain Relief, M20, Straight, 6-12mm ID	1
5	405159	Assy, Potentiometer, Wired	1
6	405238	Anchor, Cable Tie, Black Nylon, High Bond Adhesive, 1"x1"	1
7	406324	Panel, Control, Cabinet	1
8	406362	Back, Panel, Control	1
9	406403	Gasket, Panel, Control, Adhesive-backed	1
10	406404	Label, Panel, Control, 115V	1
11	406456	Inlet, Fused, IEC320-C14, 10A, Snap-in	1
12	406457	Relay, 30A, 240VAC, 120VAC, DPDT	1
13	406459	Switch, Momentary, Round, 22mm, Green, Illuminated	1
14	406460	Switch, Momentary, Round, 22mm, Red	1
15	406461	Outlet, NEMA 5-15R, 15A, Snap-in	1
16	406462	Fuse, 5A, 5x20mm, Time Delay	2
17	406528	Cord, Power, Fan, Ionizer	1
18	406529	Harness, Ionizer, Speed Control	1
19	406524	Kit, Wire, Ionizer Panel	1

WIRING DIAGRAMS

**WD
PG 1**

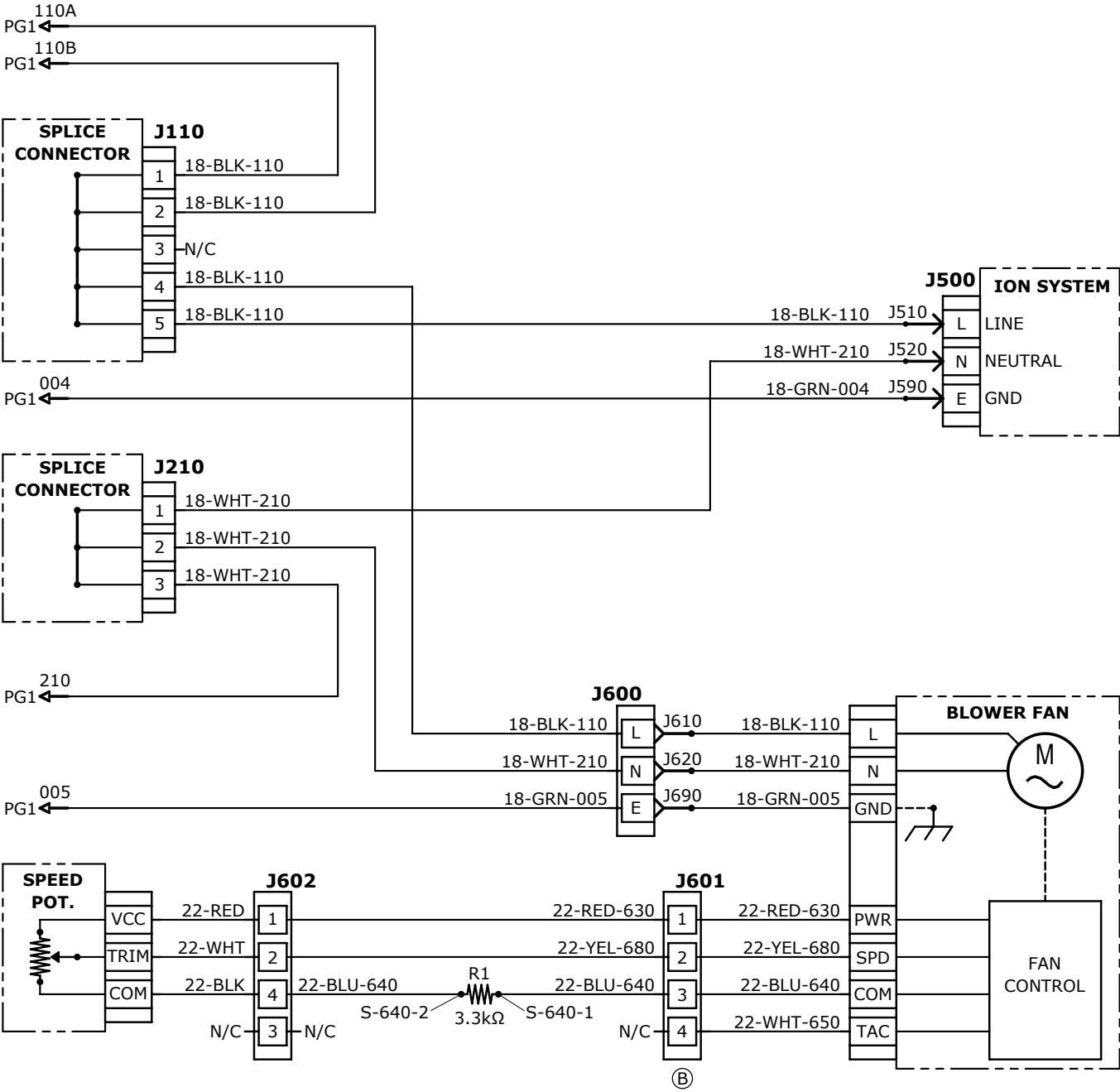
POWER SYSTEM WIRING DIAGRAM



WIRING DIAGRAMS

PRIMARY SYSTEMS WIRING DIAGRAM

**WD
PG 2**





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