

F52G
Return Grille Mounted
Electronic Air Cleaner

PRODUCT DATA



FEATURES

- F52G models are available with one electronic cell and a rated capacity of 1000 cfm (1700 m³/hr).
- Electronic cell can be washed in most automatic dishwashers.
- Solid state power supply is energized by an ON-OFF switch; or interconnection to fan coil system if requires.
- Solid state power supply is self-regulating and maintains peak efficiency during a wide range of cell dirt-loading conditions.
- Pressure drop is approximately equal to that of a regular fiberglass filter.
- Light built in the switch shows that the air cleaner is operating.
- Automatic interlock switch disconnects the power when unit is opened.

APPLICATION

The F52G Return Grille Electronic Air Cleaner is ceiling mounted in the main return air inlet of a central forced air heating, cooling, or ventilation system. It captures a significant number of the airborne particles (0.5 microns and larger) from the air circulated through the cell(s).

Contents

Application.....1

Features.....1

Specifications.....2

Ordering Information.....2

Planning the Installation.....4

Installation.....5

Checkout.....11

Service.....11

Electrical Troubleshooting.....13

Exploded View.....16

Parts List.....16

SPECIFICATIONS

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.

Models:

F52G Return Plenum Electronic Air Cleaner (one-cell model for up to 1000 cfm [1700 m³/hr]). Includes solid state power supply with air cleaner monitor capability, one electronic cell, pre-filter and door/grille.

Electrical Ratings:

No. of Cells	System Size (in.)	Maximum Current (A)		Maximum Power (W)
		120V 60Hz	220/240V, 50/60 Hz	
1	20 x 12.5	0.6	0.3	72

Capacity, Efficiency, Pressure Drop:

See Fig. 1.

Temperature Ratings:

Operating Ambient: 40°F to 125°F (4°C to 52°C).

Temperature of Airflow through Cell: 40°F to 125°F (4°C to 52°C).

Maximum Cell Washing Temperature: 220°F (104°C).

Storage and Shipping (Entire Unit): minus 40°F to

Plus 140°F (minus 40°C to plus 60°C).

Mounting:

Mounted at the opening end of the return air plenum and in the false ceiling.

Weight:

F52G Electronic Air Cleaner	Lb	Kg
Shipped	36.0	16.4
Installed	30.8	14
Cell – included in Above weights	9.5	4.3

Dimensions:

See Fig. 2.

Door/Grille Type:

Louvered.

Cell Size:

12-1/2 x 20 in. (318 x 508 mm).

Accessories and Replacement Parts:

See Fig. 20.

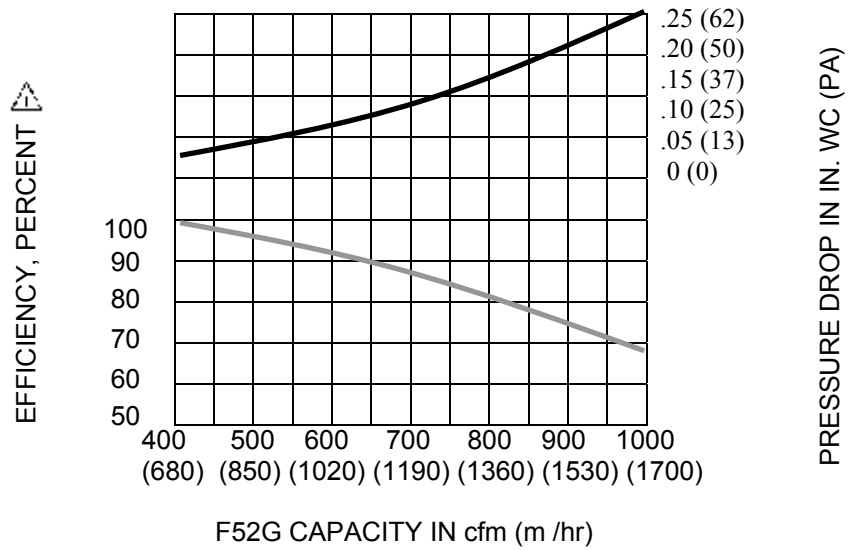
ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number, or specify:

1. Order number.
2. Voltage and frequency.
3. Dimensions: 23.7 x 17.4 in. (600 x 442 mm).
4. Type of door/grille—louvered.
5. Accessories, if desired.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Customer Logistics at Honeywell Taiwan
9F, 168, Lien Chen Road, Chung-Ho City, Taipei, Taiwan
TEL: +886-2-22431653 FAX: +886-2-22431244



△ EFFICIENCY RATINGS BASED ON NATIONAL BUREAU OF STANDARDS DUST SPOT METHOD USING ATMOSPHERIC DUST AND AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS STANDARD 52.1-92.

Fig. 1. Air cleaner efficiency and pressure drop at various airflow rates.

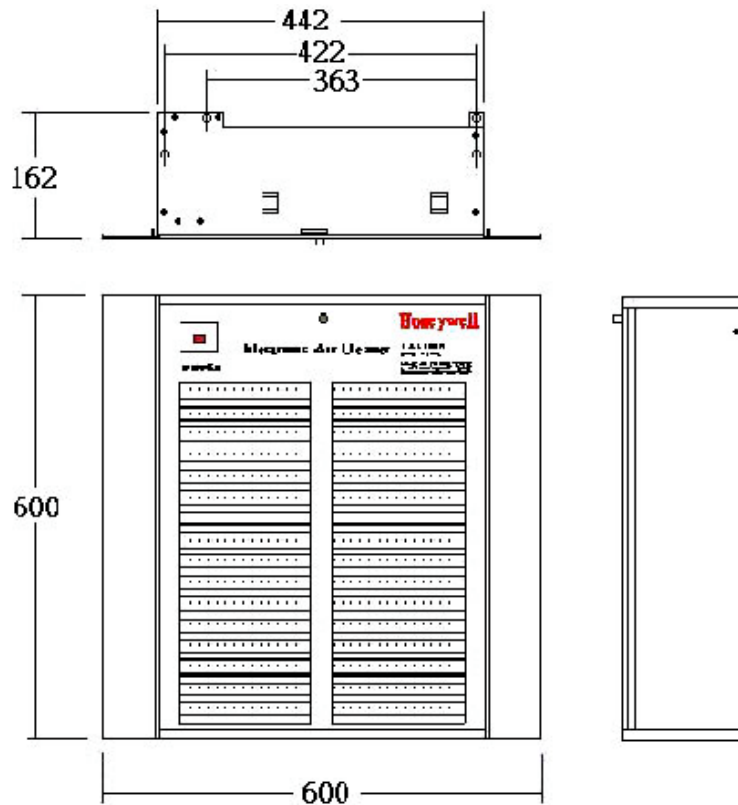


Fig. 2. Approximate installation dimensions in mm of F52G Electronic Air Cleaner.

PLANNING THE INSTALLATION

Application and Construction

The air cleaner should be installed in the occupied space return duct opening leading to a fan-coil air heating or cooling system. All of the air circulated by the system must pass through the electronic air cleaner.

The front door of the electronic air cleaner is hinged to provide access to the internal components. See Fig.3.

The air cleaner has one cell that must be installed with the ionizer section (side with fine wires) facing the door.

The cell is held in place by metal hooks and a quarter-turn latch.

A spring contact provides the electrical connection between the solid state power supply and the electronic cell. An interlock switch interrupts the line voltage to the power supply when the door is opened. A rocker-type ON-OFF switch allows the air cleaner to be turned off manually. An indicator light that is on shows that the air cleaner is energized and the power supply is producing high voltage.

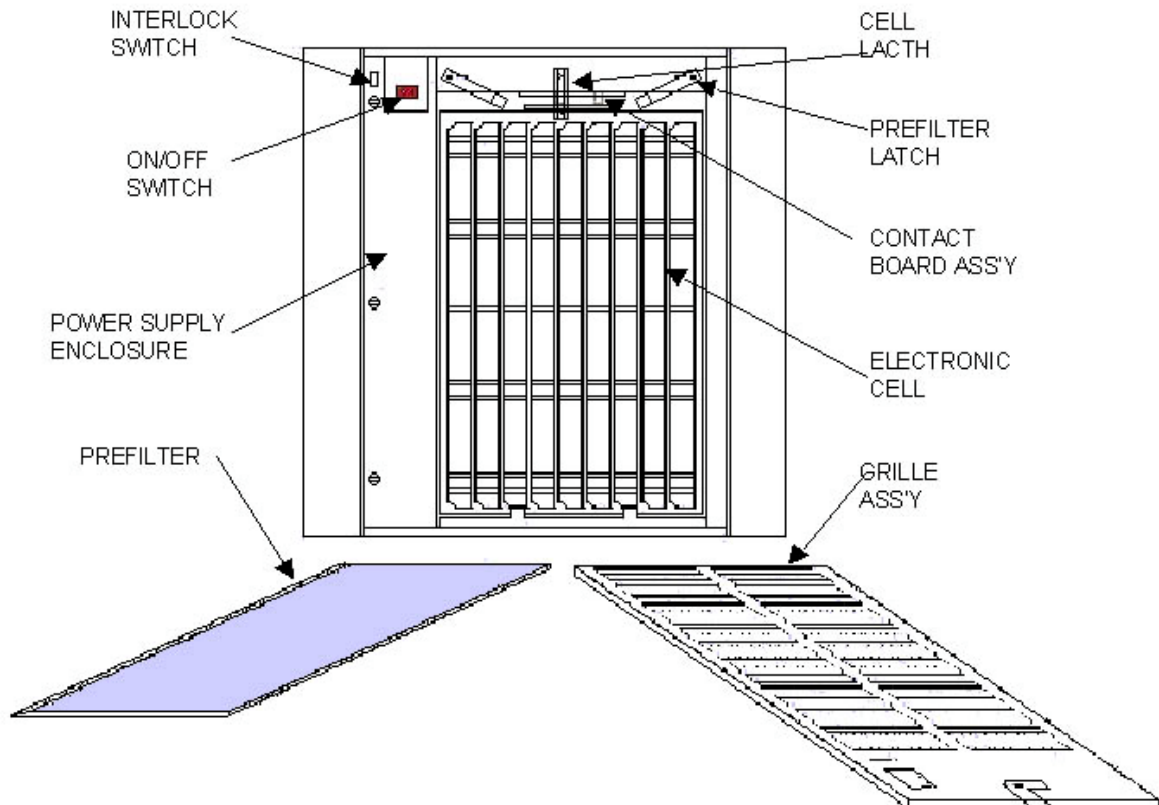


Fig. 3. Internal Components of F52G Electronic Air Cleaner.

Review Installation Requirements

The air cleaner is installed in place of the return air openings in the room so all the air circulated by the system passes through the air cleaner.

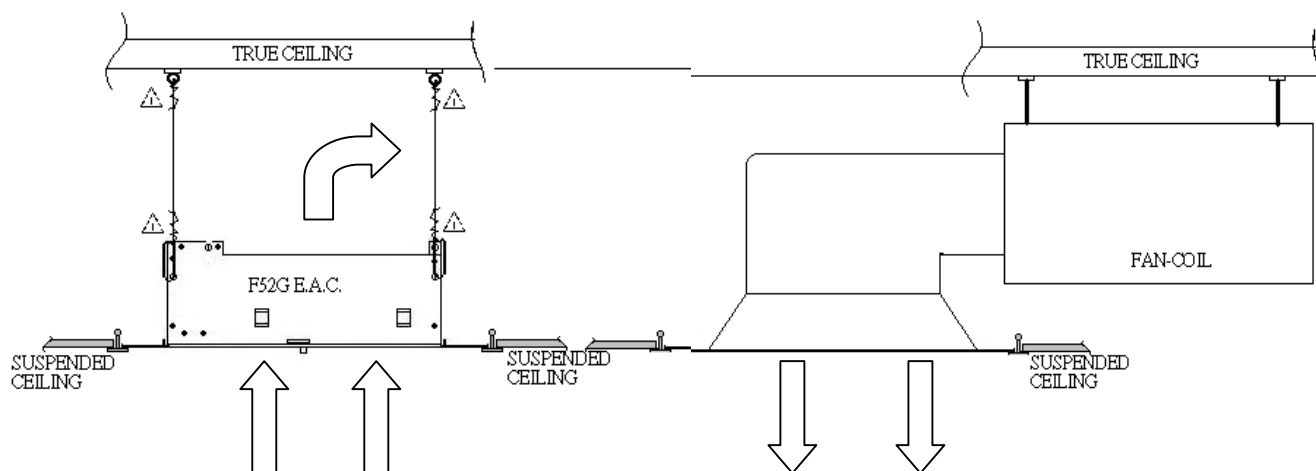


Fig. 4. Typical electronic air cleaner application on Fan-coil.

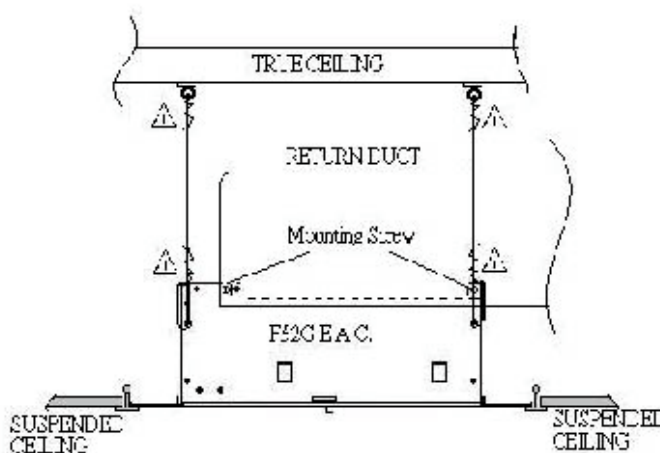


Fig. 5. Typical electronic air cleaner application on return duct.

Determine Duct Design Requirements

The return duct should end at, or slightly behind, the fan coil. Do not use a standard register flange, or the door may not fit tightly against the wall.

Transitions

Transitions are needed when the duct is a different size than the air cleaner. Gradual transitions reduce air turbulence and increase efficiency. The transition should be 20 degrees or about 4 in. per running ft (100 mm per 300 linear mm) or less on each side of a transition fitting.

INSTALLATION

When installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

CAUTION

Electric Shock Hazard.

Can cause electrical shock or equipment damage.

Disconnect power before installing air cleaner.

Unpack the Air Cleaner

Check that all components are included. The unit consists of:

- Grille assembly.
- One metal mesh prefilter.
- One electronic cell.
- Four slices.
- One accessory package.(cell handle/steel wire/M4 Nut)
- Literature.

Option parts : Two patch plates (See Fig. 6.) or Frame (See page 7.)

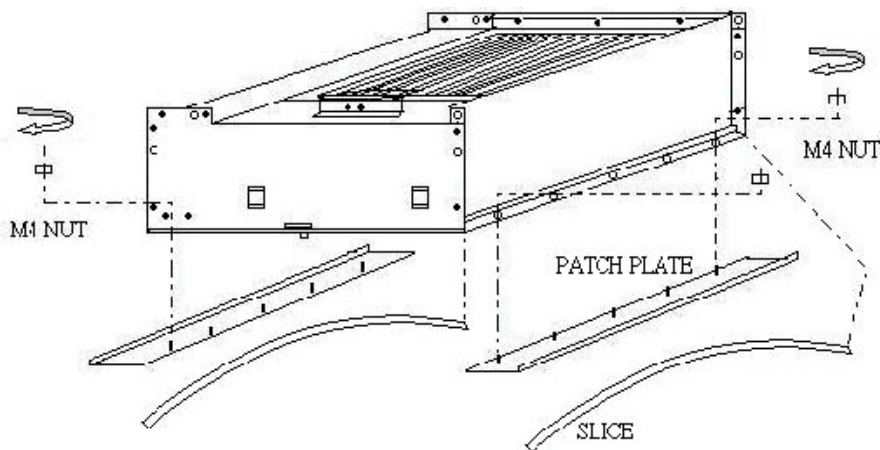


Fig. 6. Mounting the patch plates & pastes the slices.

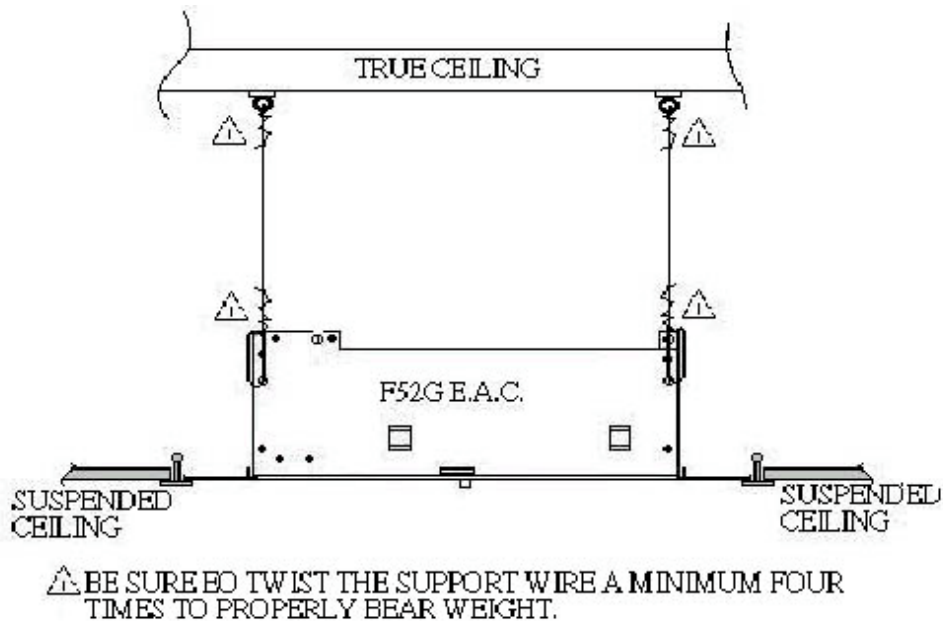
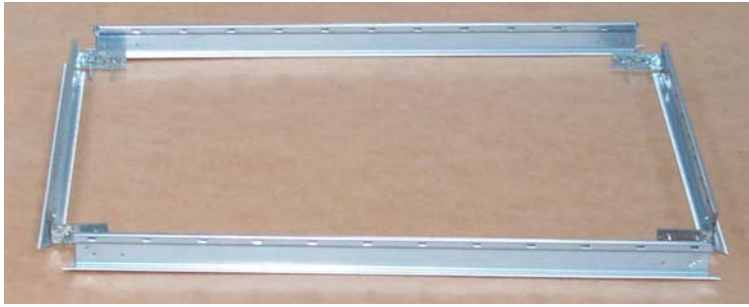
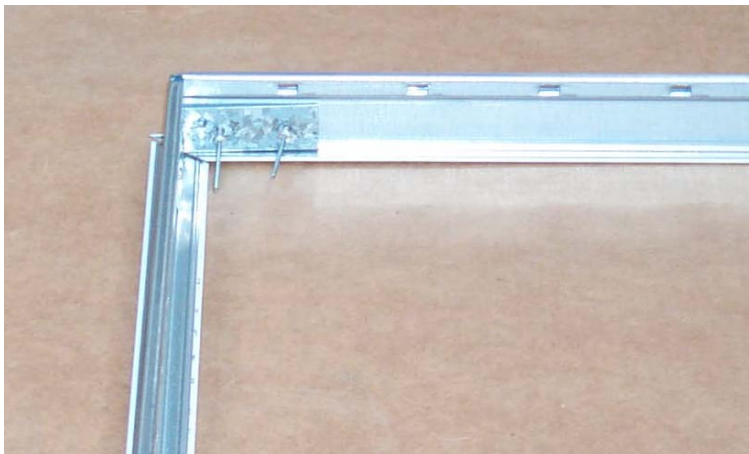


Fig. 7. Fasten air cleaner

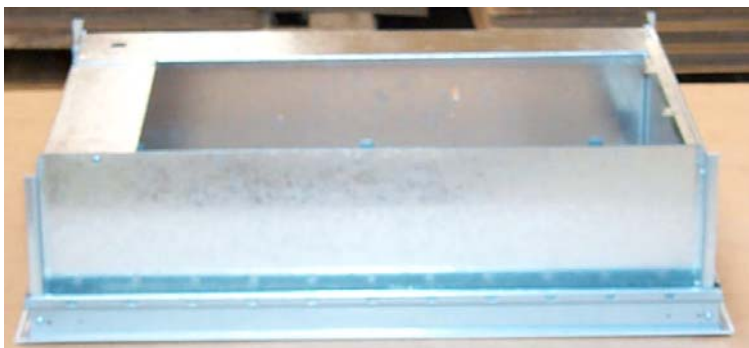
Assembly the Frame and Mounting to the F52G



Step 1 : The arrangement of the frame pieces.



Step 2 : Riveting the connection part to the frame pieces.



Step 3 : Mounting F52G to the Frame.



Step 4 : Drive the screws into the F52G at the corner for screwing the frame to F52G.

Wiring CAUTION

Electric Shock Hazard.

Can cause personal injury.

- The line voltage power source must match the voltage and frequency of the F52G.
- The air cleaner must be permanently connected to the power source. Do not use an extension cord.
- Install extension box, with cover, for all wiring connections.

No connection to the Fan Coil.

1. Disconnect power before beginning wiring to avoid electrical shock or equipment damage. All wiring must comply with applicable codes and ordinances.

2. Install a 2 in. x 4 in. extension box (for example, Steel City part number 53171) to the back of air cleaners using the holes provided.
3. Connect the white lead from the air cleaner to the neutral side of the AC power. Use the solderless connector supplied. See Fig. 8 ;Fig.8-1.
4. Connect the black lead from the air cleaner to the line side of the AC power. Use the solderless connector supplied.
5. Either conjoin the blue lead with white lead or connect it to the neutral side of the other AC Power.
6. Either conjoin the red lead with black lead or connect it to the line side of the other AC power.
7. Connect the On-Off switch with red wire or with black wire.
8. Connect the air cleaner ground terminal to ground.
9. Install cover on each box (Steel City part number 52-C-1) .

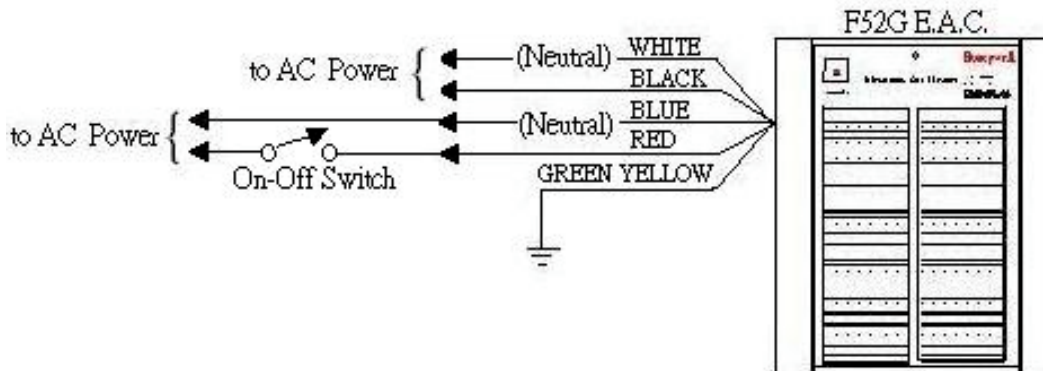


Fig. 8. No connection to the Fan Coil.

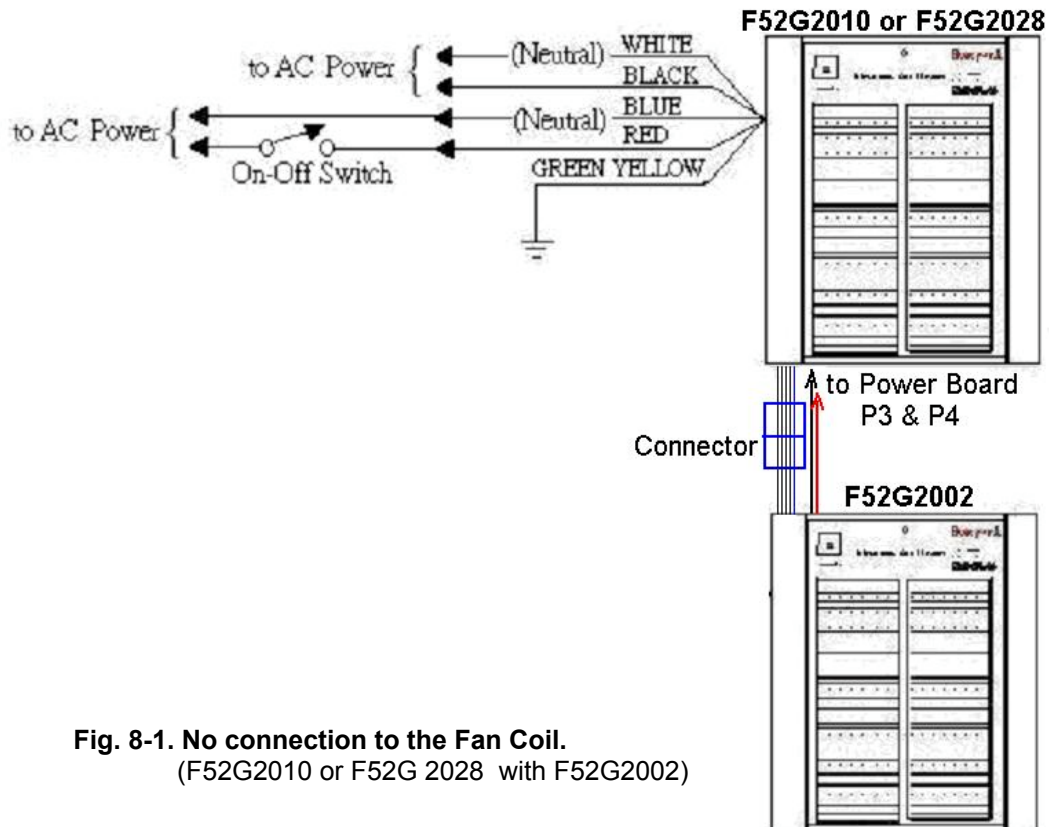


Fig. 8-1. No connection to the Fan Coil.
(F52G2010 or F52G 2028 with F52G2002)

Connection to the Fan Coil

1. Same steps as above step 1, 2, 3, and 4.
2. Connect the blue lead from EAC to the neutral terminal on fan coil thermostat or fan coil unit.
3. Connect the red lead from EAC to any one of 3 fan speed connection terminals.
4. Same as the above step 8,9.

Wiring chart as below: See Fig.9 : Fig.9-1.

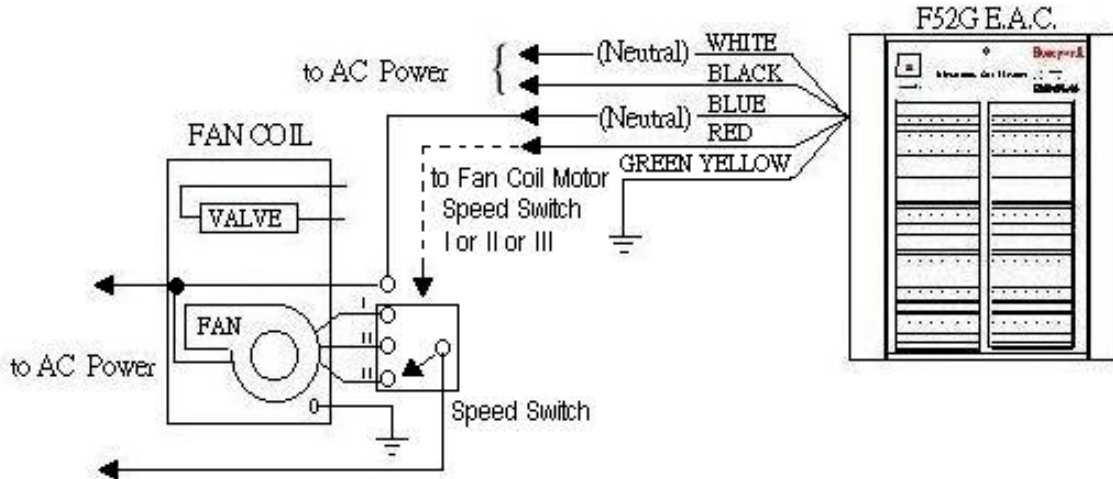


Fig. 9. Typical connections for air cleaner.

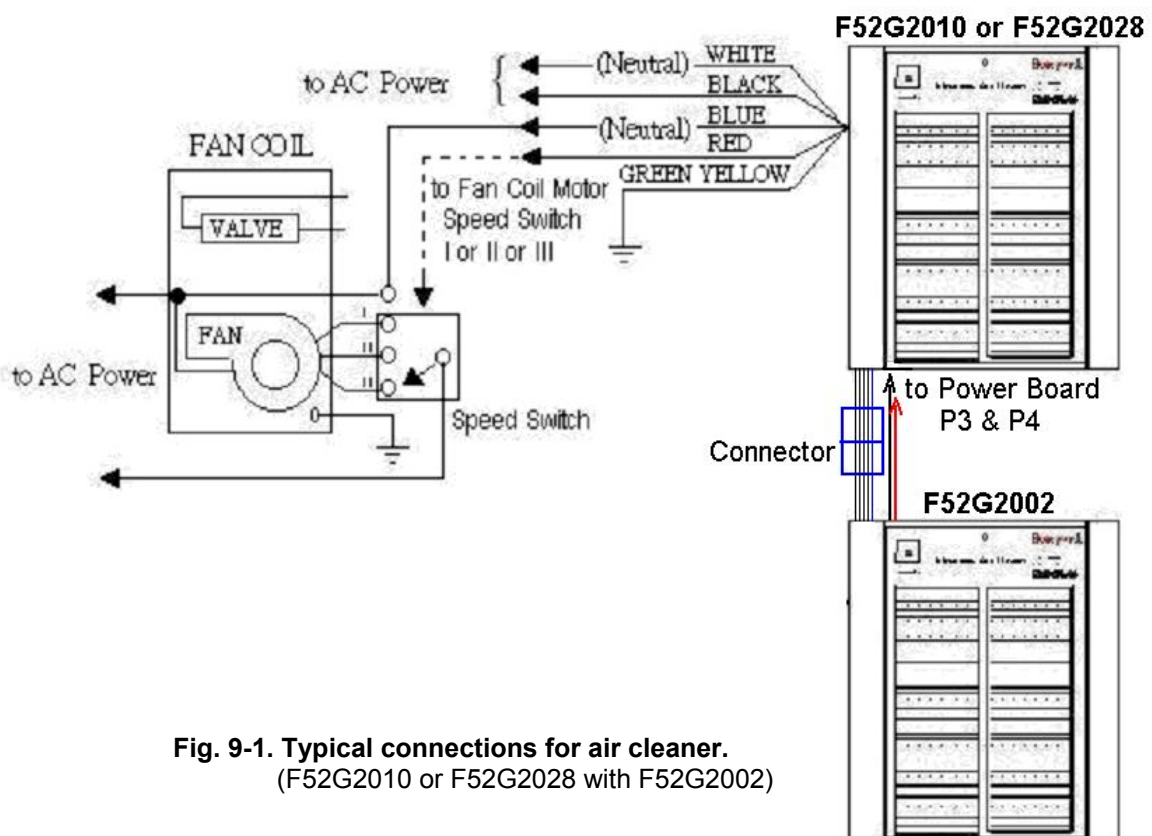


Fig. 9-1. Typical connections for air cleaner.
(F52G2010 or F52G2028 with F52G2002)

CAUTION

The input voltage between blue and red wires must be limited between 40Vac and 350Vac, 50/60Hz. Any out-range application will cause equipment damage or unpredictable accidents. Please contact with Honeywell factory in advance, if you need special design.

Attach Cell Handle(s)

The plastic handle taped to the packing material must be mounted on the electronic cell.

The handle can be mounted on either end; choose the end most convenient for inserting and removing the cell.

1. Hold the handle sideways and insert the solid tab on the back of the handle into the rectangular slot in the cell. Turn the handle 90 degrees clockwise to align the divided tab with the square hole. See Fig. 10.
2. Insert the divided tab into the square hole.
3. Fold up the tab and insert it into the slot to lock the handle in place. If necessary, press with a blunt instrument such as the end of pliers.

**INSTALL HANDLE ON END CELL
CLOSEST TO ACCESS DOOR**

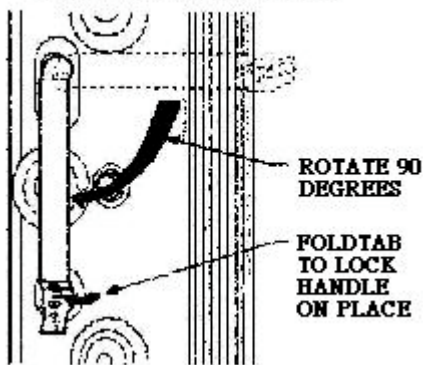


Fig.10. Attach cell handle to end of cell

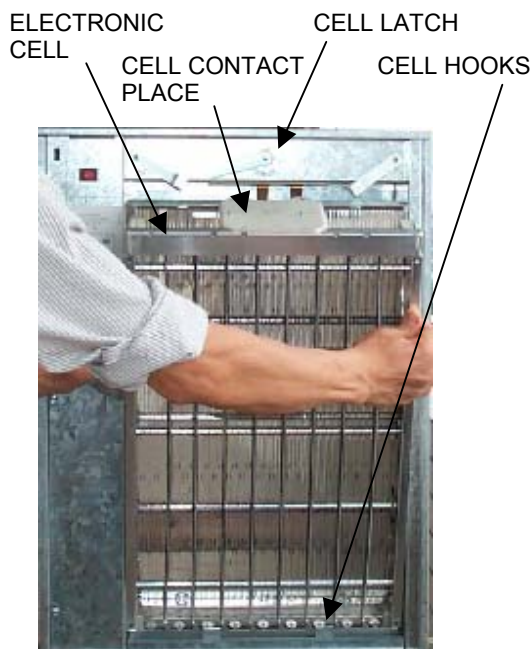


Fig. 11. Make sure hooks snap over edge of cell.

Install Electronic Cell, Prefilter and Door/Grille

1. Hold the cell by the handle and fit the end of the cell behind the metal hooks. See Fig. 11.
2. Swing the cell into the frame and turn the cell latches to lock the cell in place. See Fig. 12.
3. Reinstall the pre-filter by seating it into the rail. Rotate the Pre-filter latches to secure the pre-filter. See Fig. 13.
4. Assemble the door/grille to the cabinet as follows:
 - a. Align the door/grille with the frame.
 - b. Turn the screw to the right to hold the grille.

IMPORTANT

For proper air cleaner operation, make sure:

- The contacts on the cell(s) meet the spring contacts on the frame.
- The arrow on the side of the cell points in the direction of airflow (toward the wall or ceiling).
- The ionizer wires face toward the door/grille.

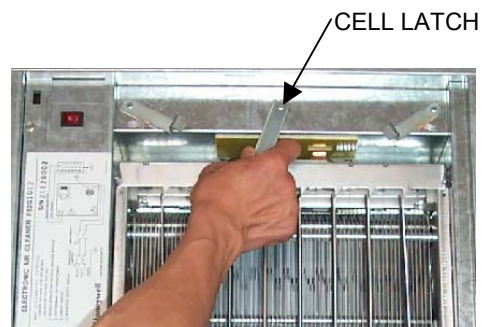


Fig. 12. Turn cell latch to lock in place.

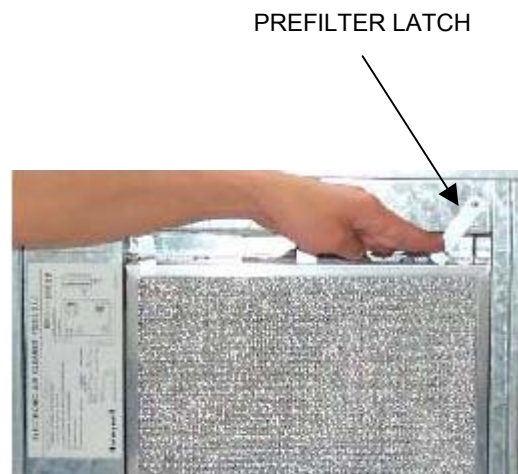


Fig. 13. Turn pre-filter latch to lock in place.

CHECKOUT

Inspect the Installation before Putting Electronic Air Cleaner into Operation

Make sure:

- The wiring connections in the power box are properly made with the proper connectors.
- The metal mesh prefilter is positioned properly.
- The airflow arrows on the cell point away from the grille.
- The electronic cell, prefilter and door/grille are clean and dry.
- The contact is good between electronic cell and the power supply contacts.

Check Air Cleaner Operation

With all components in place, turn on the air cleaner switch and close the grille. Make sure the switch light lights. This indicates that the air cleaner is energized and the power supply is producing high voltage. If the light does not come on, refer to Electrical Troubleshooting section. If F52G EAC is wired to the fan coil, also check the fan coil is ON.

SERVICE

CAUTION

Sharp Edges.

Can cause personal injury.

Handle the cell carefully to avoid cuts from the sharp metal edges.

Cleaning the Electronic Cell and Prefilter

Clean the electronic cell and prefilter regularly every one to six months. Variables such as number of occupants, activities and smoking determine how often cleaning is required. Use the wash reminder schedule in the literature packet to help establish and maintain a regular cleaning schedule.

The cell can be washed in most automatic dishwashers, by soaking in a tub or at a do-it-yourself coin operated car wash. The prefilter can be vacuumed, brushed, sprayed with a garden hose. Do not wash the prefilter in the dishwasher or car wash.

Automatic Dishwasher

CAUTION

Burn Hazard.

Can cause personal injury.

Allow the cell to cool in the dishwasher at the end of the wash cycle or wear protective gloves to avoid burns. Hot water can accumulate in the tubes that support the collector plates. Tip the cell so these tubes can drain.

IMPORTANT

- Check your dishwasher owner manual. Some manufacturers do not recommend washing electronic cells in their dishwashers.

- If the dishwasher has upper and lower arms, position the cell carefully to allow good water circulation.
 - Use care to avoid damaging or bending the cell plates when placing them in the dishwasher. If bent, arcing will result.
 - Very dirty cells, especially from tobacco or cooking smoke, can discolor the plastic parts and lining of the dishwasher. The discoloration is not harmful. To minimize it, wash the cells more frequently or try a different brand of detergent.
 - **DO NOT ALLOW THE DISHWASHER TO RUN THROUGH THE DRY CYCLE.** This will bake on any contaminants not removed during the wash cycle and reduce air cleaner efficiency.
1. Put the cell on the lower rack of the dishwasher with the airflow arrow pointing up. It may be necessary to remove the upper rack. Do not block water flow to the upper arm, if provided on the dishwasher.

HINT: Lay a few large water glasses between the spikes on the lower rack, and rest the cells on them so the spikes do not damage the aluminum collector blades.

2. Using the detergent that works best for normal dishwashing, allow the dishwasher to run through the complete wash and rinse cycle. **Do not use the dry cycle.** To avoid burns, let the cell cool completely before removing, or wear protective gloves when removing the cell. Remember that water may be trapped in the tubes that support the collector plates. Tip the cell so these tubes can drain.
3. Wipe the ionizer wires and contact board on the end of the cell with a clean cloth.
4. Inspect the dishwasher. You can rerun the wash and/or rinse cycle with the dishwasher empty if you see dirt or residue from washing the cell. If dirt or residue seems excessive, wash the cell more often or try a different detergent.
5. Inspect the cell for bent plates; bend back to normal to prevent arcing.

Soaking

CAUTION

Hazardous Chemical.

Can cause personal injury.

Do not splash the detergent solution in eyes. Wear rubber gloves to avoid prolonged detergent contact with skin. Keep detergent and solution out of reach of children.

NOTE: Always washes the cell first, then the prefilter, to keep heavy lint from getting caught in the cell.

1. Use a container that is large enough, such as a laundry tub or trash container, to hold one or both cells. Sharp corners on the cell can scratch the surfaces.
2. Dissolve about 3/4 cup of automatic dishwashing detergent per cell in enough hot water to cover the cell. If the detergent does not dissolve readily, or forms a scum on the water, try another brand or use softened water.
3. After the detergent has completely dissolved, place the cell in the container to soak for 15 to 20 minutes. Agitate up and down a few times, and then remove.

4. Next, wash the prefilter the same way. Empty and rinse the wash container.
5. Rinse the cell and prefilter with a hard spray of very hot water; rinse the tub clean, then fill the tub with clean hot water and soak for 5 to 15 minutes. Rinse until water draining from the cell and prefilter no longer feels slippery.
6. Wipe the ionizer wires and contact board on the end of the cell with a clean cloth.

Car Wash

Use the hand sprayer at a coin-operated car wash to wash the cell. Hold the nozzle at least 2 ft (0.6m) away from the unit to avoid damage from the high-pressure stream of water. Follow

The same sequence of wash and rinse as recommended for cars. However, do not wax the cell. Rinse until the water draining from the cell no longer feels slippery.

Reinstalling Cell and Prefilter

1. Inspect the cell for broken ionizer wires and bent collector plates. Repair as necessary.
2. Replace the cell properly. The electrical contact board must face the power supply contacts. The airflow arrows on the cell must point into the air duct. Secure with the latch.
3. Reinstall the prefilter. Turn on the air cleaner.
4. Close the door/grille and fasten it with the two door latches.

5. Turn on the system fan. If the cell and prefilter are wet, you may hear arcing (snapping). If the arcing is annoying, simply turn off the air cleaner for two to three hours, or until cells are dry.

Cleaning the Door/Grille

The door/grille may require washing periodically, though not as frequently as the electronic cell and prefilter. When it appears dirty, it can be vacuumed using the brush attachment on your vacuum cleaner, or disassembled and cleaned by agitating in a solution of mild detergent in warm water.

Replacing Ionizer Wire

Broken or bent ionizer wires can cause a short to ground, often resulting in visible arcing or sparking. Do not use the cell until the pieces of broken wire are removed. It can be used temporarily with one wire missing, but replace the wire as soon as possible. See Parts List section for order number.

Replacement wires are cut to length with eyelets on both ends for easy installation. To install:

1. Hook the eyelet on one end of the wire over the spring connector on one end of the cell. See Fig. 14. Be careful to avoid damaging the spring connector or other parts of the cell.
2. Hold the opposite eyelet with a needle nose pliers and stretch the wire the length of the cell. Depress the opposite spring connector and hook the eyelet over it.

REPLACING AN IONIZER

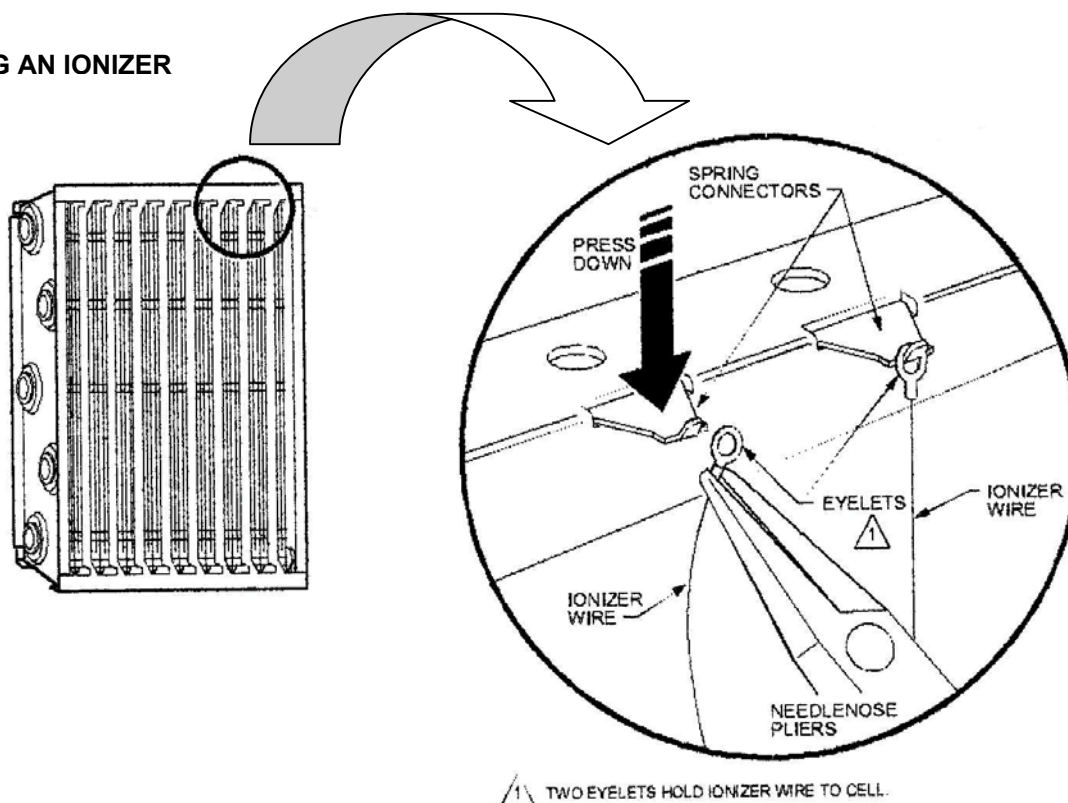


Fig. 14. Install new ionizer wire by hooking eyelets over spring connectors.

ELECTRICAL TROUBLESHOOTING

WARNING

Electric Shock Hazard.

Can cause personal injury or equipment damage.

The following procedures expose hazardous live parts.

Disconnect power supply between checks and proceed carefully.

IMPORTANT

The following instructions are for use by qualified personnel only.

Tools and Equipment

Troubleshooting the electronic air cleaner requires only a couple of tools:

- Needle nose pliers (for stringing ionizer wires).
- Ohmmeter with 25 kVdc probe (Fluke model 80K -40 H.V. or equivalent). See Fig. 16.

Troubleshooting Procedure

CAUTION

Electric Shock Hazard.

Can cause personal injury.

To reduce the risk of electric shock, don't perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

The Electronic Air Cleaner troubleshooting procedures, Fig. 15, show how to quickly isolate a problem in the air cleaner. Although a meter is needed for some steps, the primary diagnostic tools are the neon light and the FAULT indicator.

The solid state power supply assembly provided in this air cleaner has no field-serviceable components. If troubleshooting indicates a power supply assembly problem, replace the entire power supply assembly. See Parts List section for order number.

Switch Light

The light is visible from Front view. The high voltage portion of the power supply powers it. When on, it indicates that the air cleaner is powered, the power supply is working properly.

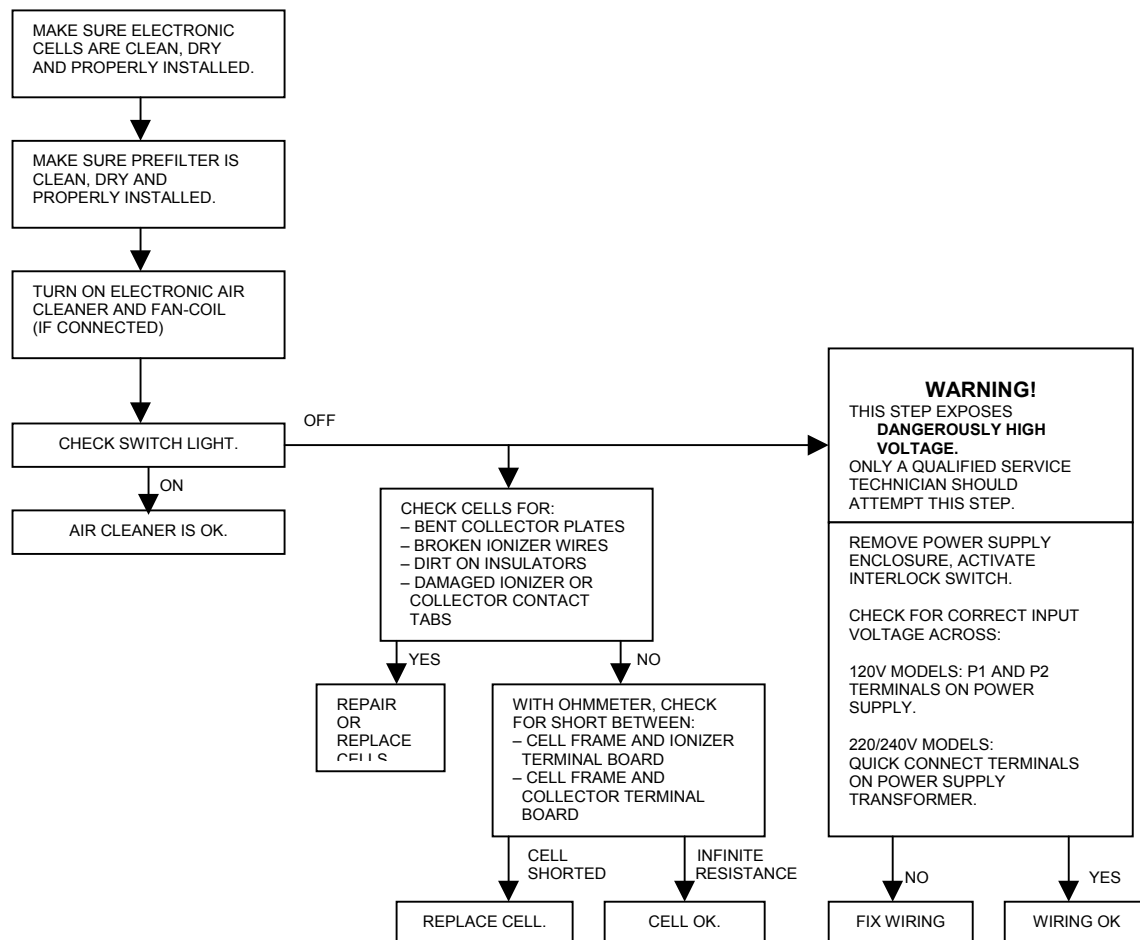


Fig. 15. Electrical troubleshooting procedure for F52G Electronic Air Cleaners

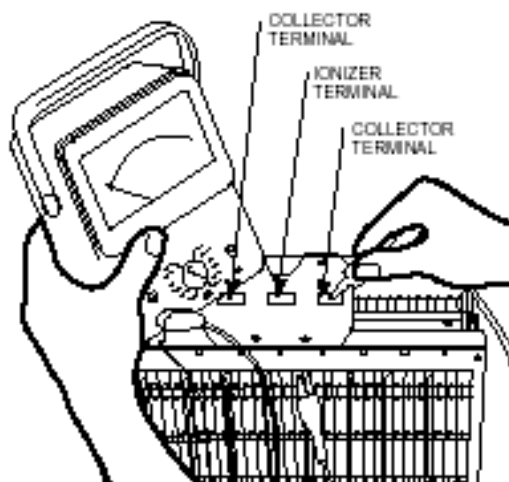


Fig. 16. Use an ohmmeter to check electronic cell for short circuits.

Reducing Ozone Odor

CAUTION

Electric Shock Hazard.

Can cause personal injury.

Always disconnect power before working on power supply.

IMPORTANT

Only a trained service technician should perform the following procedure.

The electronic air cleaner generates a small amount of ozone in normal operation. During the first week or two of operation, the amount can be higher because of sharp edges on some of the new high voltage metal parts. Normal use dulls these edges in a short time.

The average person can detect the odor of ozone in concentrations as low as 0.003 to 0.010 parts per million (ppm). The electronic air cleaner contributes 0.005 to 0.010 ppm of ozone to the indoor air. The U.S. Food and Drug Administration, and Health and Welfare Canada recommend that indoor ozone concentration should not exceed 0.050 ppm. As a comparison, the outdoor ozone level in major cities is sometimes as high as 0.100 ppm.

However, if desired, the ozone generated by the air cleaner can be reduced by moving J5 on the power supply. This reduces ozone production about 20 to 25 percent and reduces efficiency about 7 to 10 percent, depending on actual airflow delivered by the furnace blower.

To Reduce Ozone Odor

1. Open the air cleaner door, turn off the power to the air cleaner, and remove the cell(s).
2. Remove the power supply enclosure.
3. Find J5 and move it. See Fig. 17.
4. Replace the power supply enclosure.
5. Replace the cell(s), turn on the power, and close the air cleaner door.

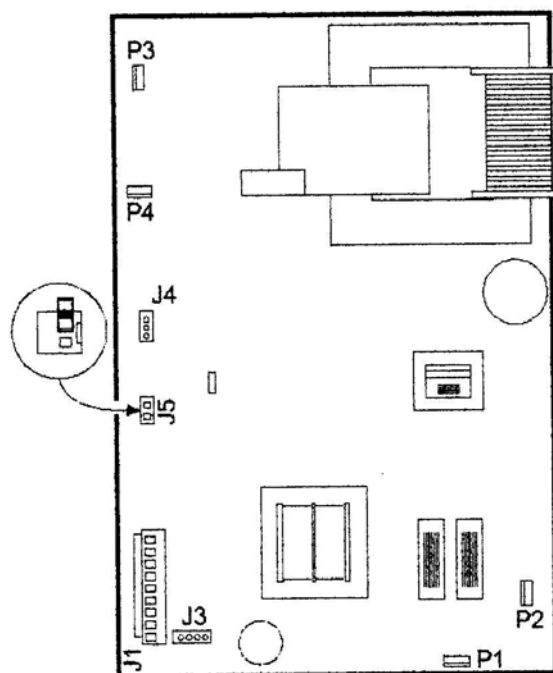


Fig. 17. Move J5 shorting bar to reduce ozone production about 20 to 25 percent.

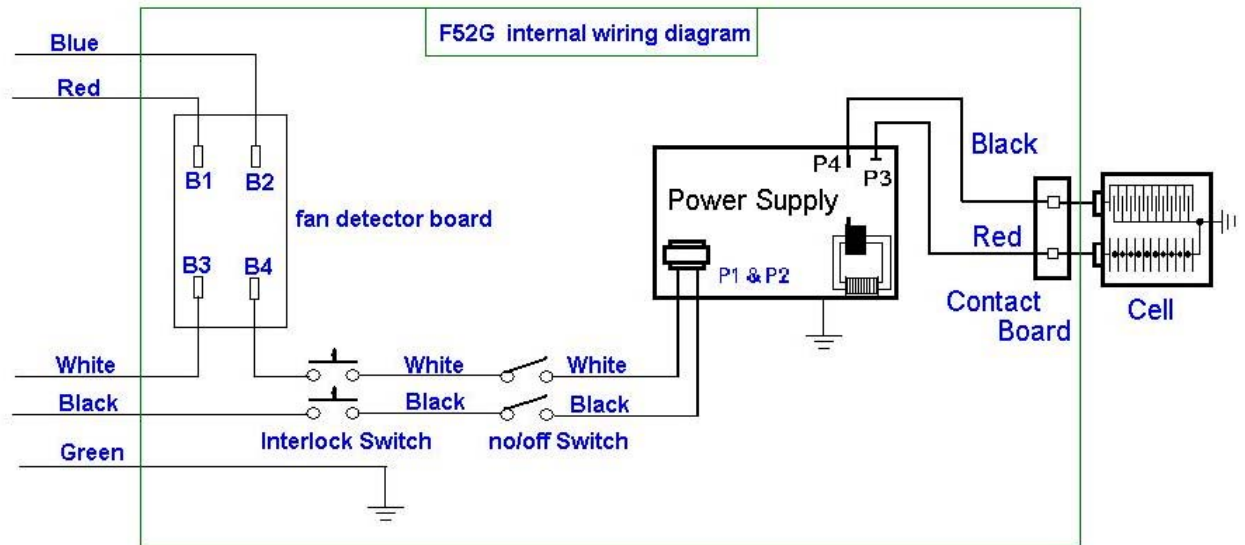


Fig. 18. F52G1004 or F52G1012 model electrical schematic.

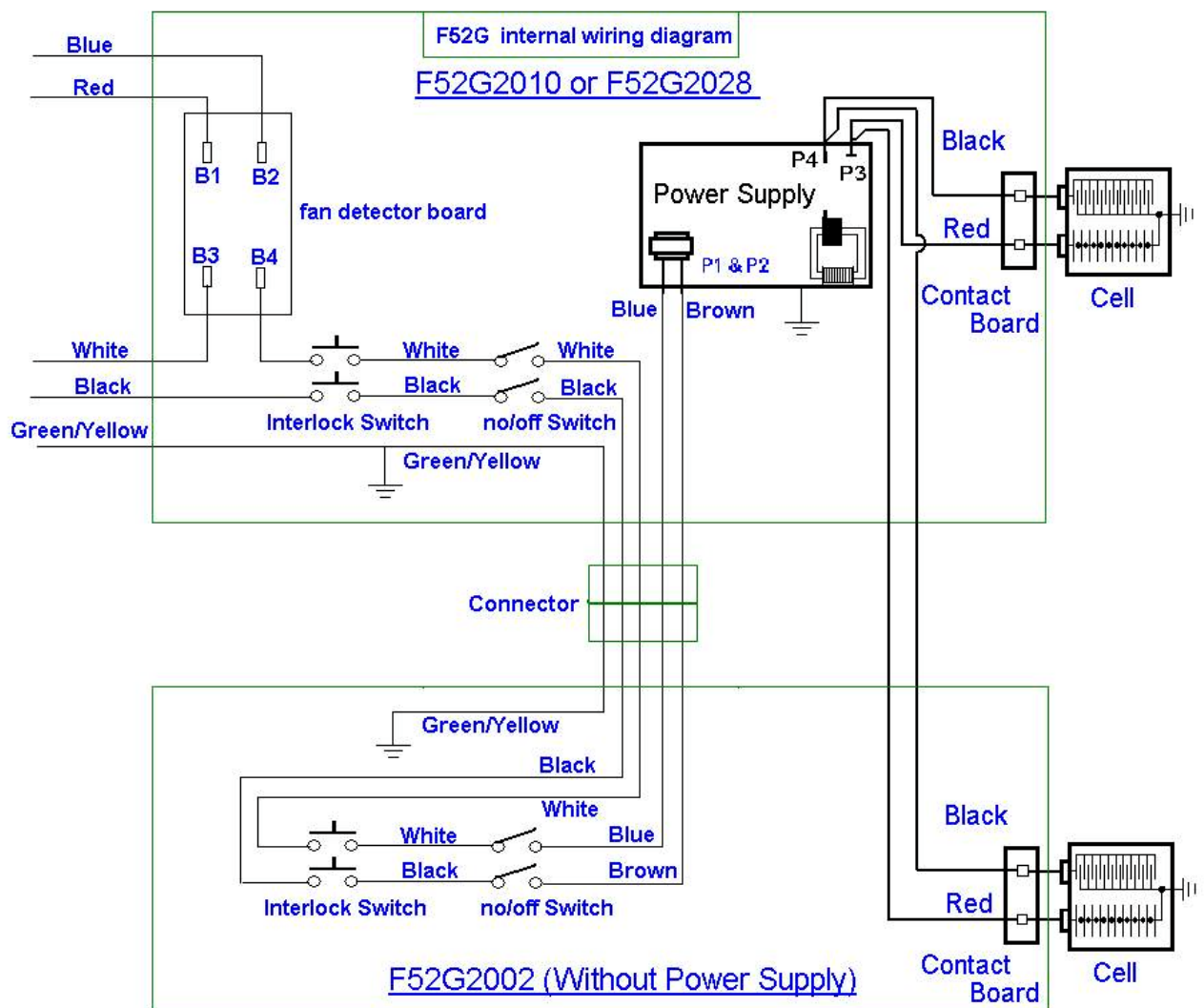


Fig. 19. F52G2010 or F52G2028 with F52G2002 model electrical schematic.

EXPLODED VIEW

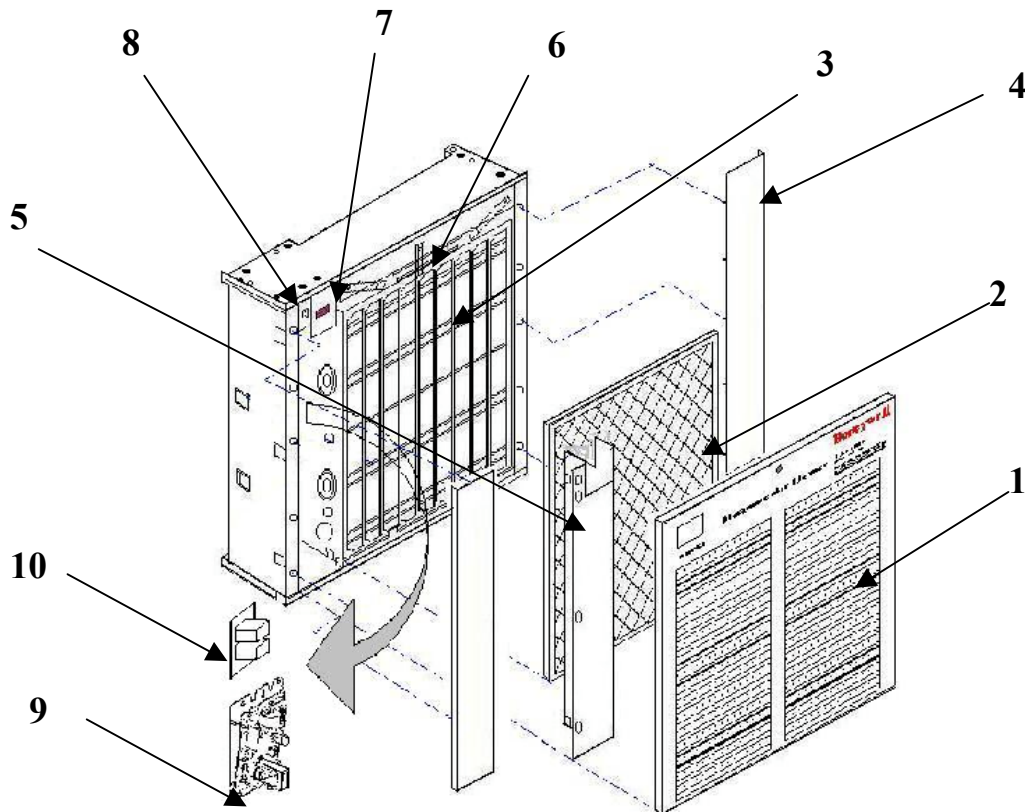


Fig. 20. F52G part numbers correspond with Parts List.

PARTS LIST

Item Number	Description	Part Number	
		120 Vac Model	220/240 Vac Model
1	Door/Grille Ass'y	88601008A	88601008A
2	Prefilter	202289	202289
3	Electronic Cell	FC37B1030	FC37B1030
4	Patch Plate (Option Parts)	88601007-002	88601007-002
5	Power Supply Cover	88601005	88601005
6	Cell Contact Board	190912A	190912A
7	On/Off Switch	3022-AA	3022-AA
8	Interlock Switch	8217-L	8217-L
9	Power Supply	208427K	208427T
10	Fan Detector Board Ass'y	88601047A	88601047A
11	Plastic Slice	88601037	88601037
12	Frame (Option Parts)	88601041	88601041

Parts and Accessories Not Illustrated

Description	Part Number	
	120 Vac Model	220/240 Vac Model
Cell Handle	137266	137266
Ionizer Wires (Must be ordered in multiples of 5.)	136434AA (9/cell)	136434AA (9/cell)

MEMO

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