Honeywell Home

# 203327, 203350, 203361 Replacement Power Supply Kits for Electronic Air Cleaners

**INSTALLATION INSTRUCTIONS**

## APPLICATION

These kits replace the power supplies with solid-state performance indicators (SSPI) used in the F50, F52, F57, and F90 Electronic Air Cleaners. See Table 1. Each kit includes the power supply and leadwires.

***IMPORTANT***

*These kits cannot be used for air cleaners with an air flow switch.*

**⚠ CAUTION**

**ELECTRIC SHOCK HAZARD. CAN CAUSE ELECTRICAL SHOCK OR EQUIPMENT DAMAGE.**

Disconnect power before removing or installing power supply board.

**Table 1. Power Supply Replacement Guide.**

| Model | Voltage | Nominal Size | | Ionizer Current (Amps) | Replacement Power Supply (OS no.) |
|---|---|---|---|---|---|
| | | (in.) | (mm) | | |
| F50E[a] | 120 Vac | 16 x 25 | 406 x 635 | 1.65 | PS1202C00 |
| | | 20 x 20 | 508 x 508 | 1.65 | PS1202C00 |
| | | 20 x 25 | 508 x 635 | 2.1 | 203327D (OBS.)[b] |
| | 240 Vac | 16 x 25 | 406 x 635 | 1.65 | 203327G (OBS.)[b] |
| | | 20 x 20 | 508 x 508 | 1.65 | 203327G (OBS.)[b] |
| | | 20 x 25 | 508 x 635 | 2.1 | 203327E (OBS.)[b] |
| F52E (One Cell) | 120 Vac | 20 x 12-1/2 | 508 x 318 | 1.0 | PS1202C00 |
| | 220/240 Vac, 50 Hz | | | 1.0 | 203350B (OBS.)[b] |
| F52 (Two Cell) | 120 Vac | 20 x 25 | 508 x 635 | 2.1 | PS1202C00 |
| | 220/240 Vac, 50 Hz | 20 x 25 | 508 x 635 | 2.1 | 203327B |
| F57A (Two Cell) | 120 Vac | 20 x 25 | 508 x 635 | 2.1 | PS1202C03 |
| | 220/240 Vac, 50 Hz | | | 2.1 | 203361B (OBS.)[b] |
| F57B (One Cell) | 120 Vac | 20 x 12-1/2 | 508 x 318 | 0.9 | 203361C (OBS.)[b] |
| | 220/240 Vac, 50 Hz | | | 0.9 | 203361D (OBS.)[b] |
| F90A (Two Cell) | 120 Vac | 20 x 25 | 508 x 635 | 2.1 | PS1202C03 |
| | 220/240 Vac, 50 Hz | | | 2.1 | 203361J (OBS.)[b] |
| F90B (One Cell) | 120 Vac | 20 x 12-1/2 | 508 x 318 | 0.9 | 203361G (OBS.)[b] |
| | 220/240 Vac, 50 Hz | 20 x 12-1/2 | 508 x 318 | 0.9 | 203361H (OBS.)[b] |

[a] Not for units with Solid State Air Flow Switch (SSAFS); replace power box.

[b] "OBS." is an abbreviation for obsolete.

69-0777-04

# INSTALLATION

## WHEN INSTALLING THIS PRODUCT...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition such as electrical shock.
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.

## ⚠ WARNING

**ELECTRIC SHOCK HAZARD. SAFETY HAZARD. CAN CAUSE ELECTRICAL SHOCK OR EQUIPMENT DAMAGE**

Disconnect power before removing old power supply board and installing replacement power supply board. When servicing the F90, stand on a stable work platform or ladder.

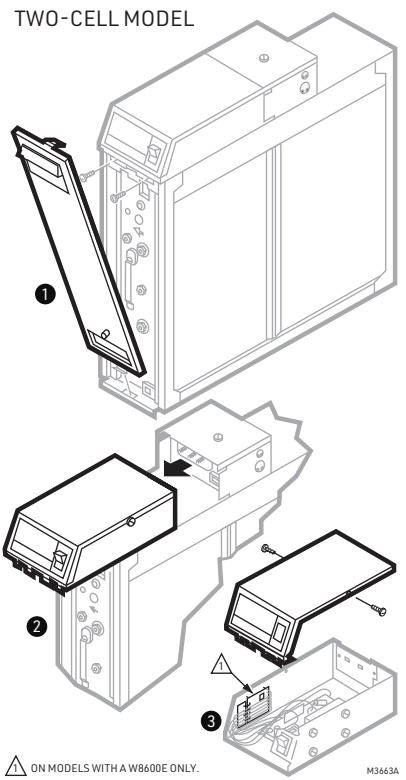


**Fig. 1. Power supply location on F50E Two-Cell Air Cleaners.**

## TO REMOVE OLD POWER SUPPLY BOARD AND PERFORMANCE INDICATOR BOARD

NOTE: It is advisable to observe the location of leadwires on the power supply to be replaced. Tagging the leadwires as they are removed will help to correctly reconnect them.

- Open access door or grille. See Figs. 1 through 5.
- Open power box. On the F90, remove the power supply assembly as follows:
  - Open the cover by pulling the two latches located on the front of the cover and swinging the cover down until it hangs (see Fig. 5).
  - Remove the two prefilters and the two cells from the channel guides.
  - Loosen the screws holding the power supply assembly cover plate and remove the cover plate. See Fig. 6.
  - Loosen the two screws on the inner wall of the power supply assembly and three screws on the top of the assembly. Slide the power supply assembly toward the center of the air cleaner and disconnect the two Molex connectors and the one quick connect connector. See Fig. 6.
  - Remove the power supply assembly to a table or work bench to replace the power supply.
- Disconnect the red ionizer and black collector leads at the board quick connects.

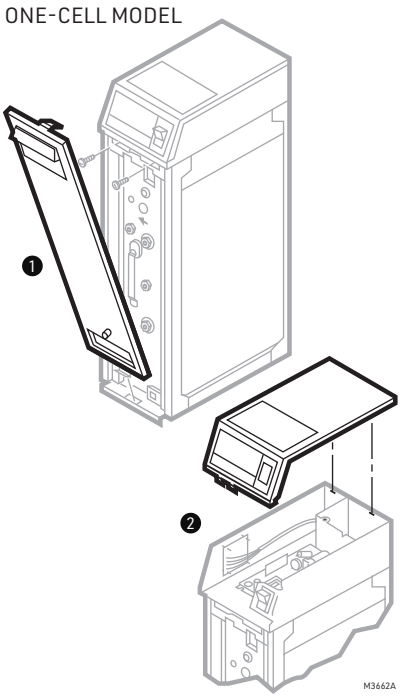


**Fig. 2. Power supply location on F50 One Cell.**

- Disconnect remaining input leads at the quick connects.

- Remove and set aside the sheet metal screws holding the power supply board in place. Remove the performance indicator board by clipping the four plastic standoffs with diagonal cutters, or squeezing the ends of the standoffs to release the board. Remove and discard the board.

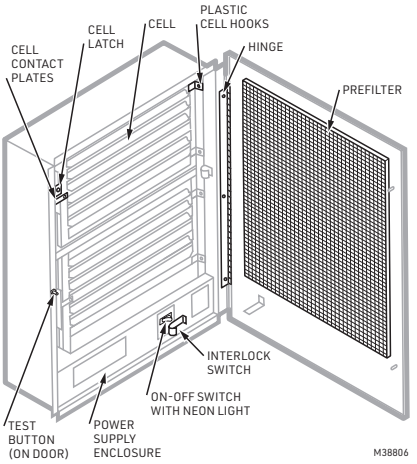


**Fig. 3. Power supply enclosure location on F52 Air Cleaner. Open to access power supply.**

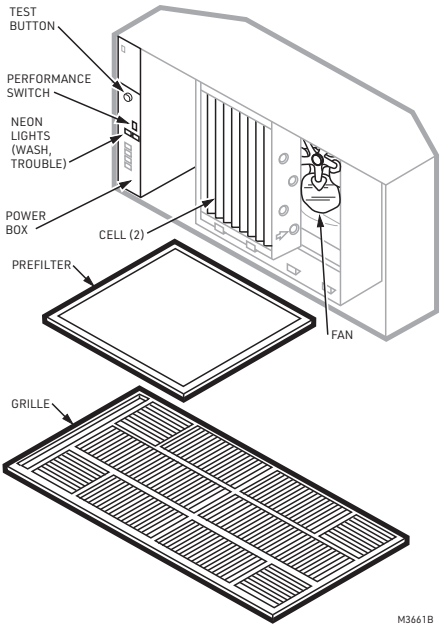


**Fig. 4. Power box location on F57 Air Cleaners. Open to access power supply.**

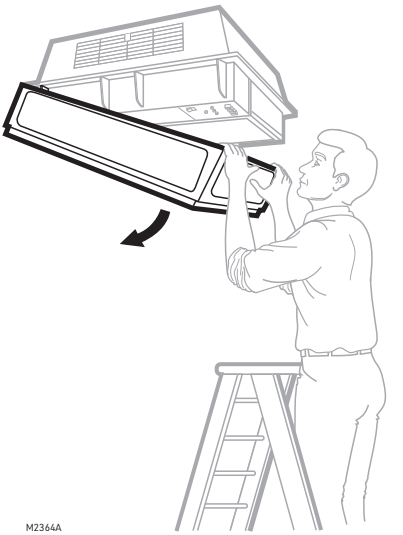


**Fig. 5. Opening the F90A Cover.**

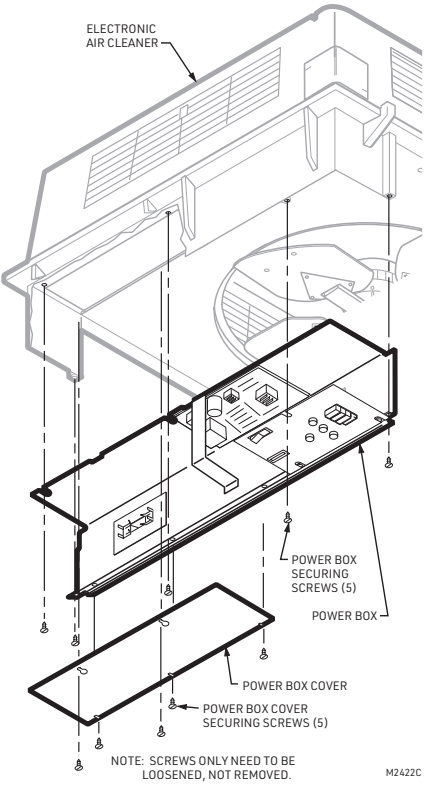


**Fig. 6. Removing F90A Power Supply Assembly.**

## Install New Power Supply

- When replacing the power supply, refer to the appropriate wiring diagram. See Figs. 7-14.
- When replacing the power supply, reuse the lead wires remaining in the air cleaner when removing the old power supply board and performance indicator board.
- Note that the F52 uses a mounting plate that has a rubber bumper; turn over the power supply and pry the rubber bumper off the bottom.
- Align the mounting holes and mount the new power supply in the air cleaner using the sheet-metal screws removed earlier. Orient the terminal strip (on selected models) so that pin 1 is at the top.

***IMPORTANT***

*Do not splice ionizer and collector leads. These leads must be unbroken to avoid electrical shock through the connector or tape covering the splice.*

- Route the remaining leads so the red ionizer and black collector leads are separate from the power supply and light leads. Route all leads around, rather than over, the power supply board. Keep all leads away from high voltage leads. On single-cell, duct mounted cleaners, route the performance indicator output lead (4-wire thermostat cable) to the rear of the power supply assembly.
- Connect the leads to the quick-connect terminals on the new power supply. See Figs. 7 through 14.
- Route the leads through the cable clamp and hook the cable clamp to the tab on the left front of the power supply. Push down the tab to hold the cable clamp in place. See Fig. 18.

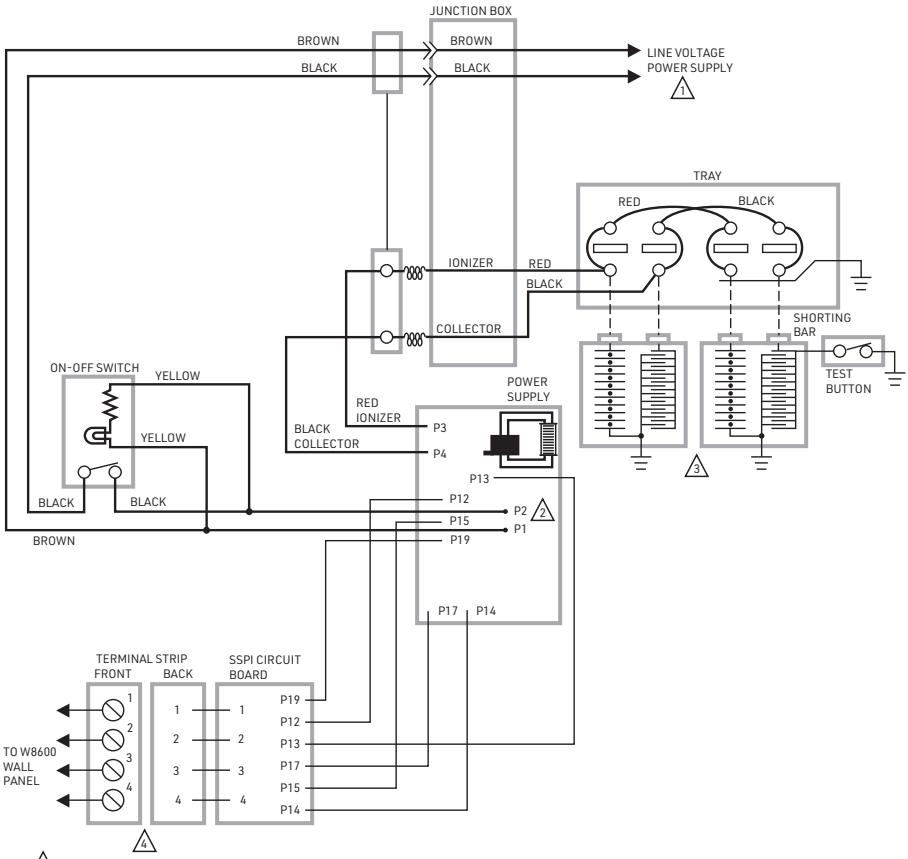


**Fig. 7. Past electronic air cleaner (F50, F52) with W8600E—internal schematic.**

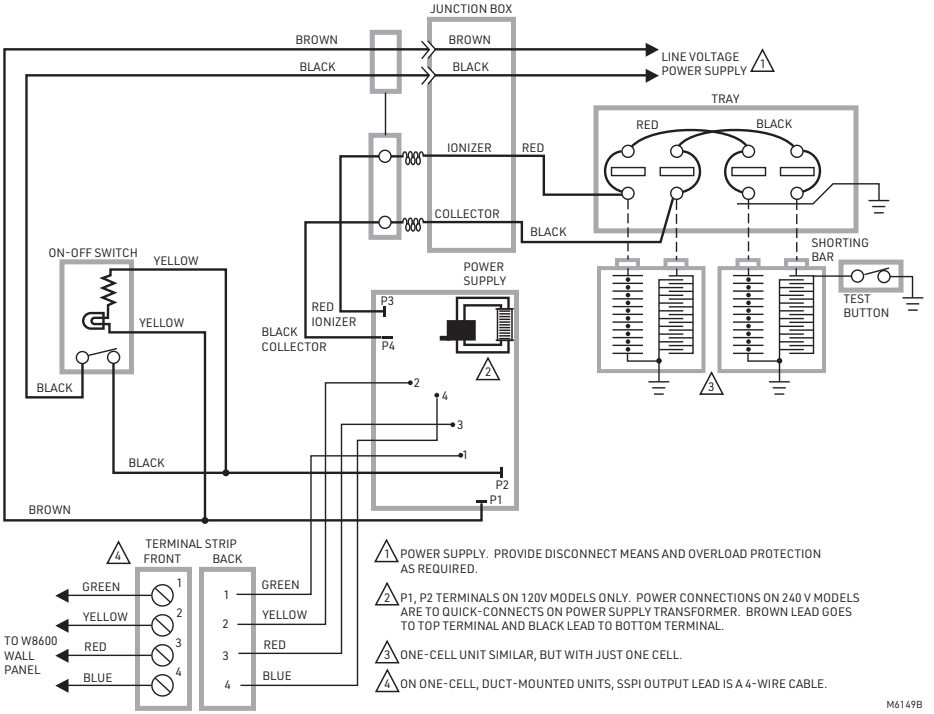


**Fig. 8. Present electronic air cleaner (F50, F52) with W8600E—internal schematic.**

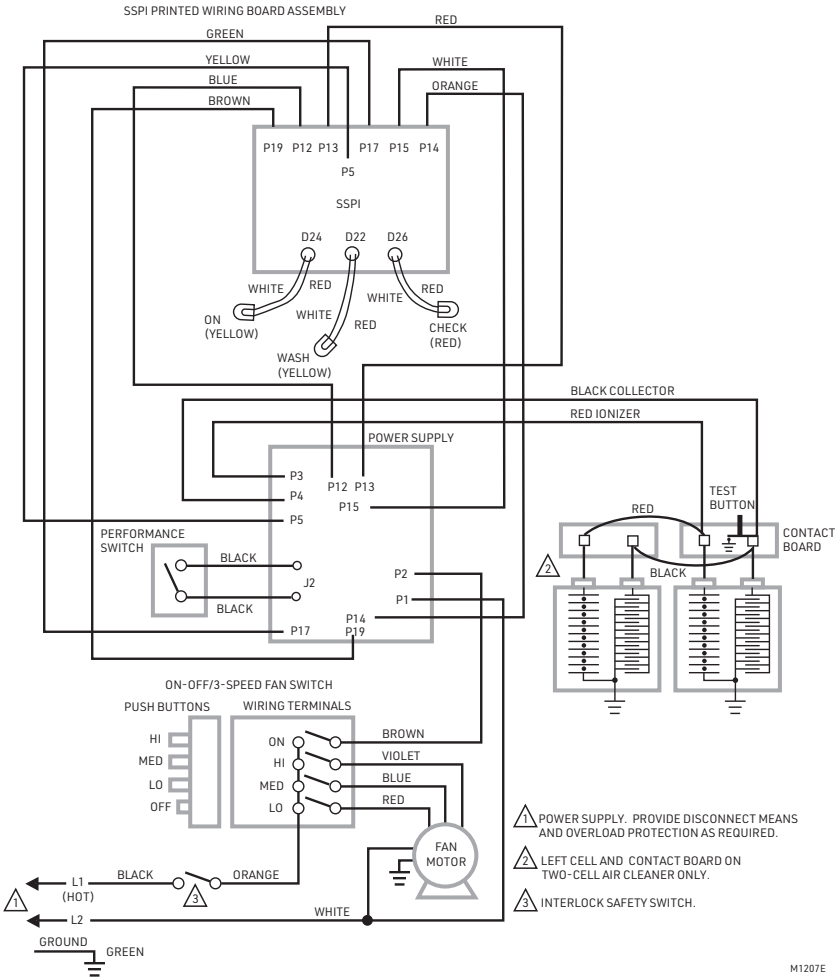


**Fig. 9. Past F57 120V model electrical schematic.**

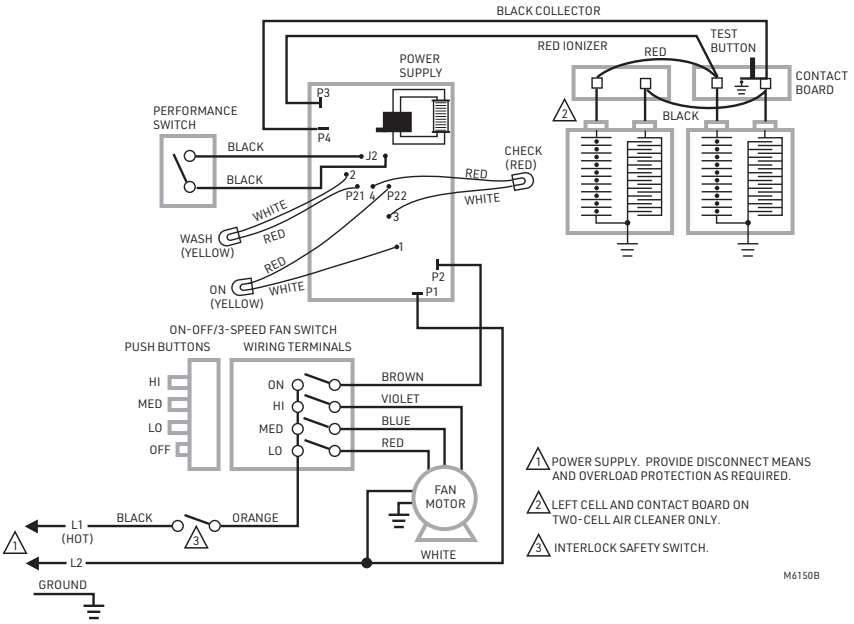


**Fig. 10. Present F57 120V model electrical schematic.**

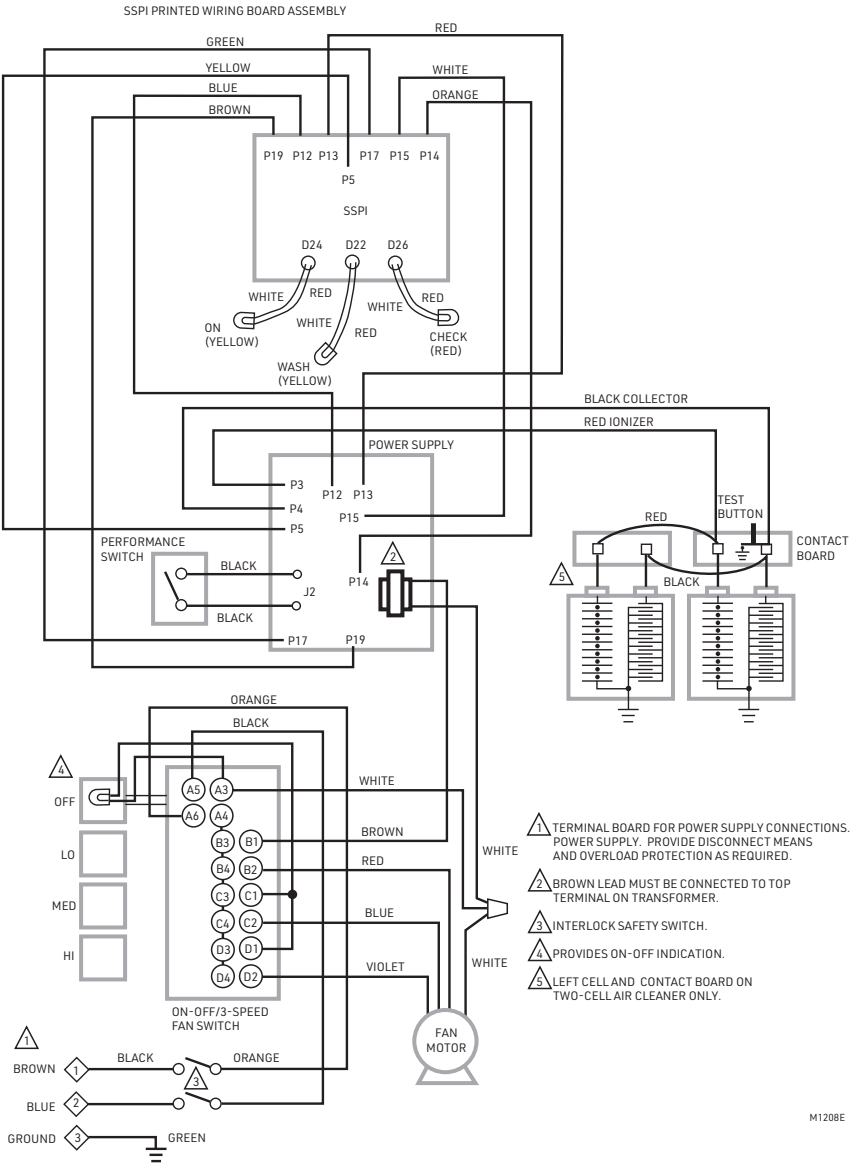


**Fig. 11. Past F57 220/240V model electrical schematic.**

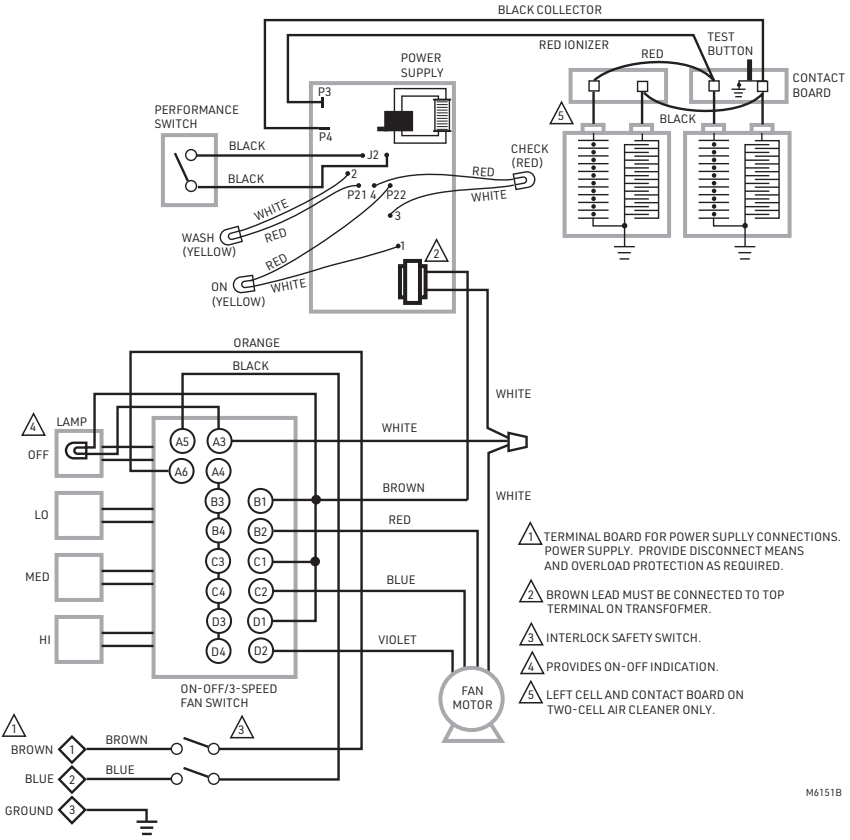


**Fig. 12. Present F57 220/240V model electrical schematic.**

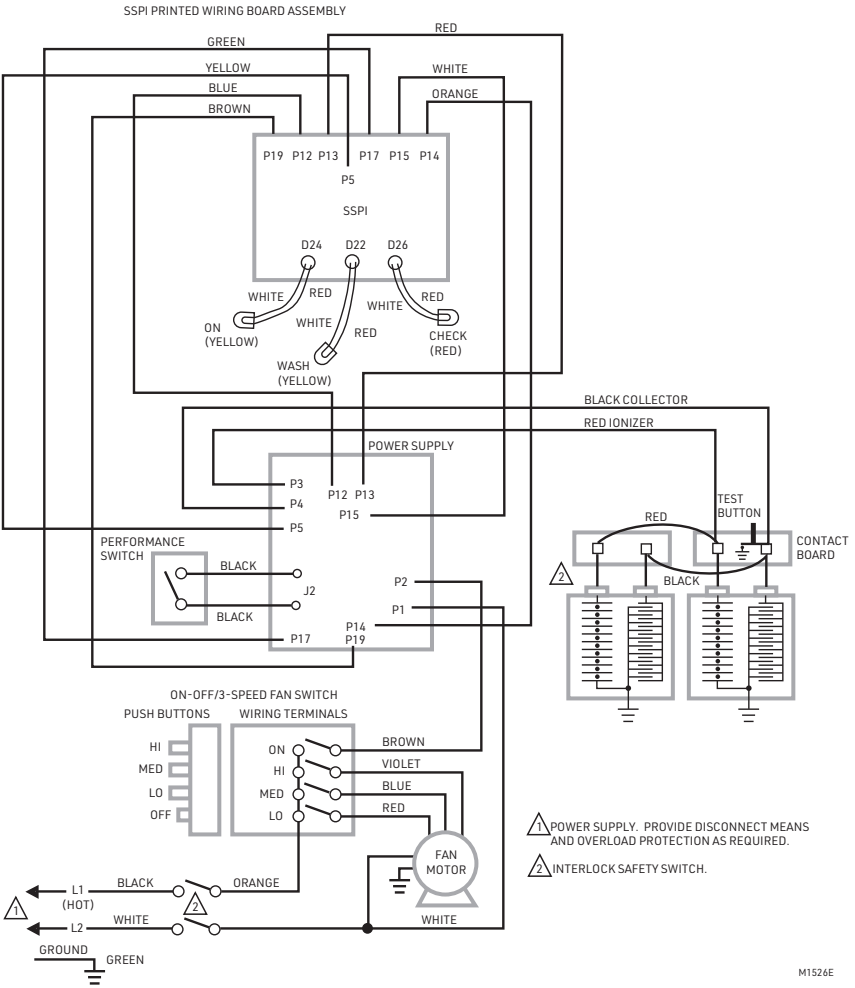


**Fig. 13. Past F90 schematic diagram.**

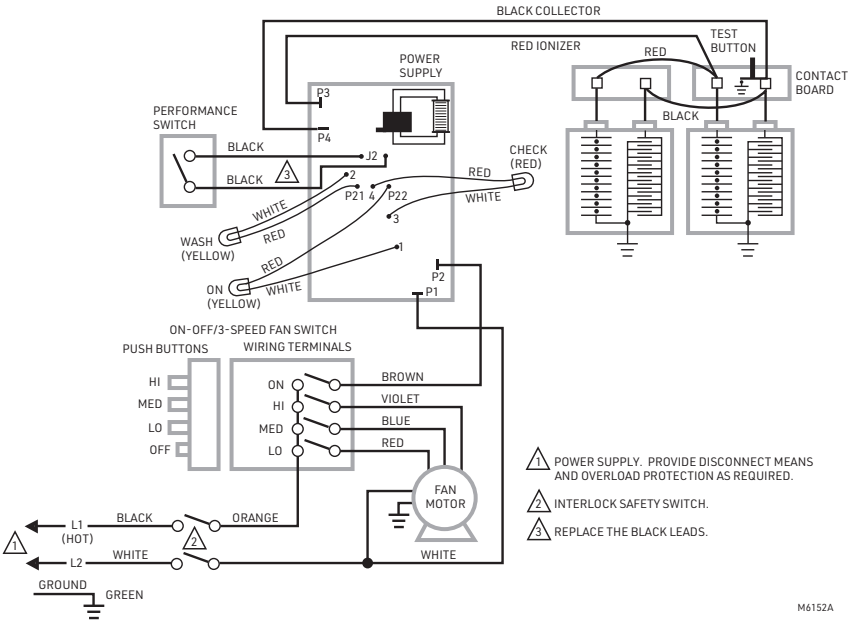


**Fig. 14. Present F90 schematic diagram.**

# CHECKOUT

## 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.

## CAUTION

**The following instructions are for use only by qualified personnel.**

With all components in place, turn on the air cleaner switch and, for forced air (ducted) systems, energize the system blower. Check the following points of operation:

1. Verify the neon light or ON 1ight is lighted. The neon light comes on to show that the air cleaner is energized.
2. Turn off the system blower. The neon light or ON light should go off.
3. Turn the system blower back on. With the air cleaner energized, push the test button. A snapping sound indicates that collector voltage is available.
4. With a multispeed blower, repeat steps 1 through 3 for each fan speed.
5. If operation is not as described, refer to the Troubleshooting and Service section.

# TROUBLESHOOTING AND SERVICE

## 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.

## CAUTION

**The following instructions are for use only by qualified personnel.**

## Tools and Equipment

Troubleshooting the electronic air cleaner requires:

- Needlenose pliers for stringing ionizer wires and inserting edge connectors.
- Test meter with 15 kVdc probe or equivalent. The electronic air cleaner troubleshooting charts, Figs. 15 and 16, show how to quickly isolate a problem in the air cleaner. Although a meter is needed for some steps, see Fig. 17, the primary diagnostic tools are the neon light and the test button.

## Test Button

When pushed, the test button shorts from collector voltage to ground. See internal schematics, Figs. 7 through 14. The resulting arcing sounds indicate that

high voltage is being supplied to the collector. The solid-state power supply controls current flow to the collector.

### Power Supply

**WARNING**

**ELECTRIC SHOCK HAZARD CAN CAUSE PERSONAL INJURY.**

Always turn off power and remove access door or grille before removing power box or its cover.

The solid state power supply assembly has no field serviceable components. When troubleshooting indicates a power supply or solid state performance indicator problem, replace the entire power supply assembly.

## Modification to Reduce Ozone Odor

**WARNING**

**ELECTRIC SHOCK HAZARD CAN CAUSE PERSONAL INJURY.**

Before opening power supply cover, always disconnect power and open the access door or grille to discharge the high-voltage power supply.

In normal operation, the electronic air cleaner generates a small amount of ozone. 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 in one of two ways:

1. Install an activated carbon filter downstream from the air cleaner. Make sure particles from the filter cannot fall into the air cleaner.
2. On F57 and F90 models, make sure the performance switch is in the LOW position.

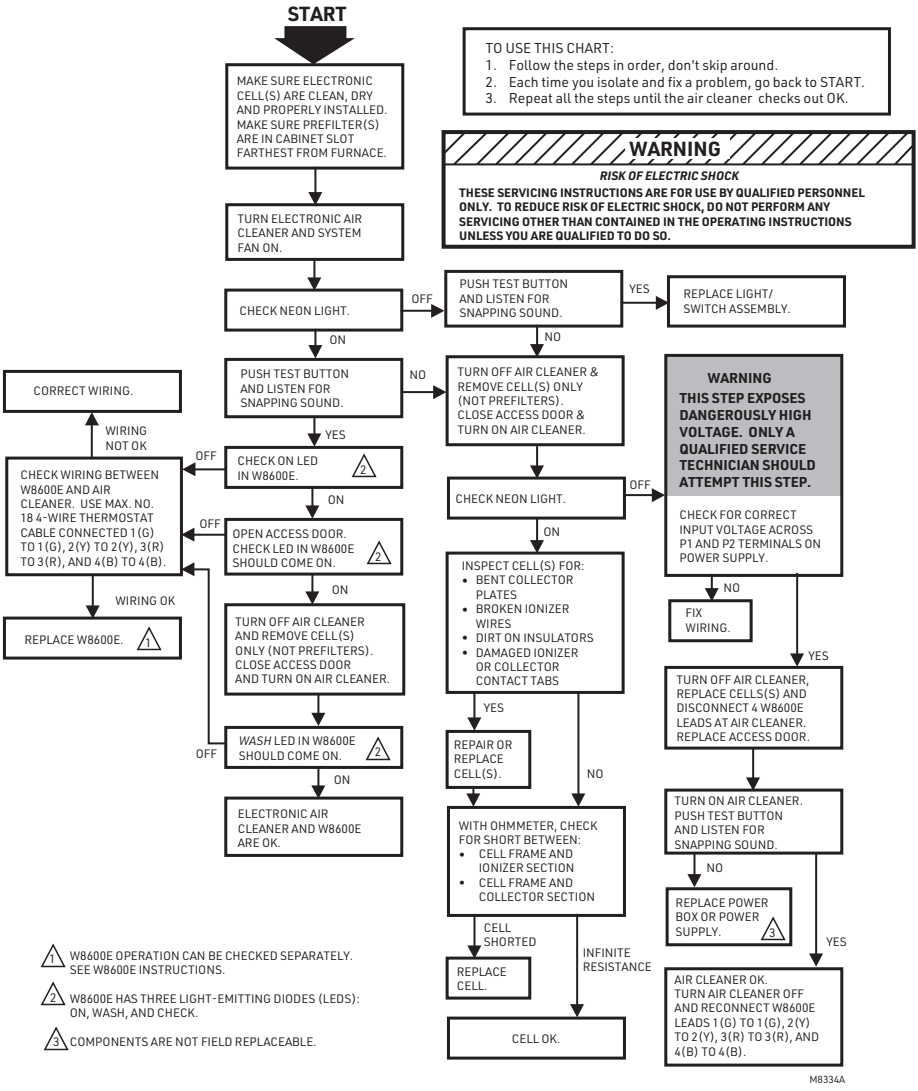


**Fig. 15. Troubleshooting air cleaners with solid-state performance indicator.**

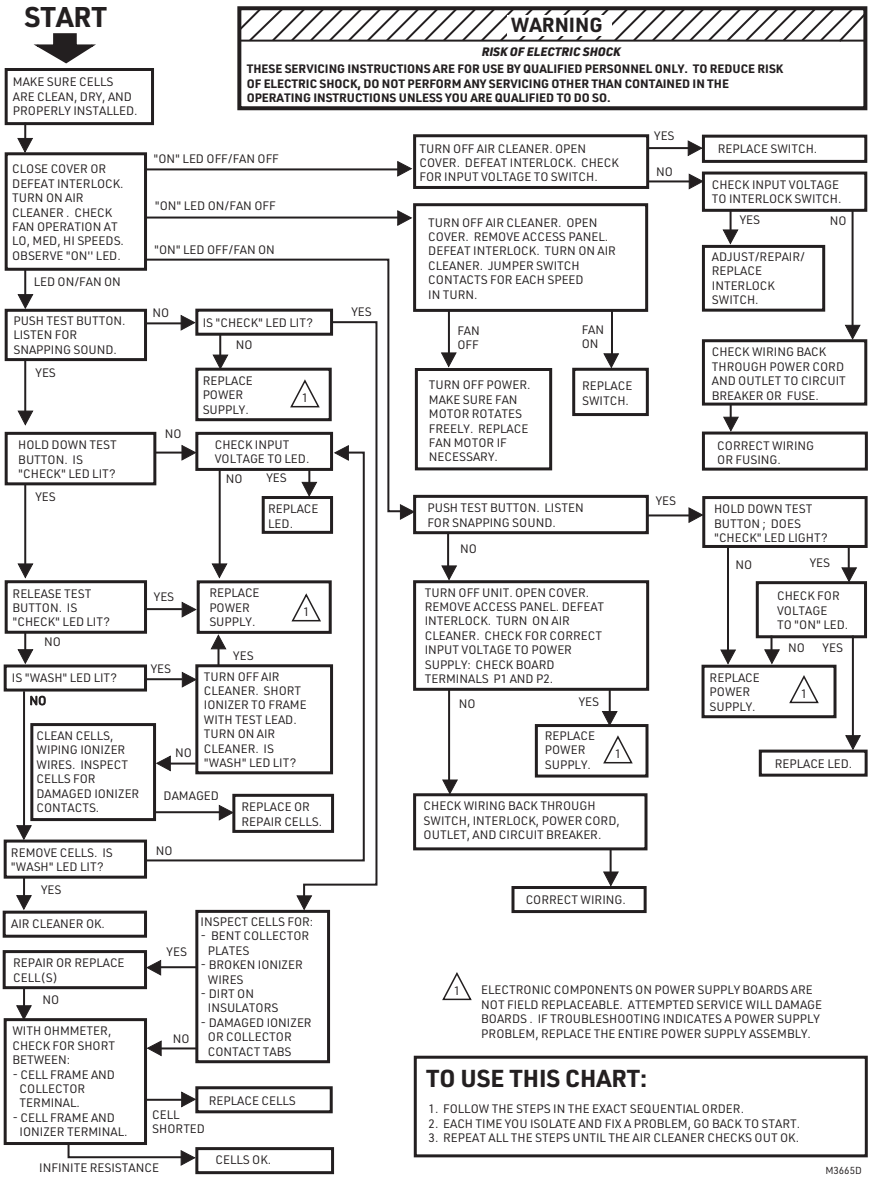


**Fig. 16. Troubleshooting air cleaners with solid-state performance indicator and integral fan.**

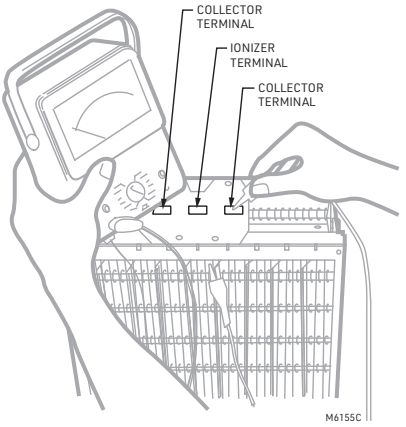


**Fig. 17. Use ohmmeter to check electronic cells for short circuits.**

## ⚠ CAUTION

**Only a trained service technician should perform the following procedure.**

On all other models, the procedure explained below will reduce ozone production about 20 to 25 percent, and efficiency about 7 to 10 percent.

1. Turn off power to the air cleaner.
2. Open the access door or grille to discharge the highvoltage power supply.
3. If power supply is remotely mounted, make sure access door or grille is open. Remove the power box cover.
4. Find the J2 jumper and clip it in the center; see Fig. 18. Make sure the leads are separated and cannot touch.
5. Replace power supply cover and access door or grille. Turn on power.
6. Repeat checkout procedure before leaving the job.

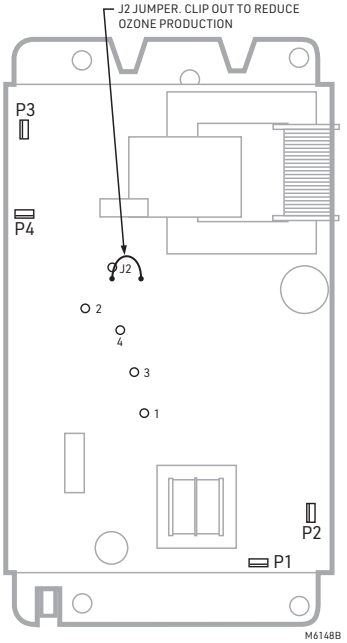


**Fig. 18. Terminal J2 and cable clamp clip locations.**

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