

INSTALLATION INSTRUCTIONS



Indoor Ventilation Kit

Therma Grow 120/220
120/220 Plus

View these instructions online at www.lbwhite.com

Kit Contents:

DESCRIPTION	QTY.
Instruction	1
Inlet hood	1
Bag of terminals and hardware	1
Air inlet with transition duct	1
Motor, air inlet	1
Black 8 1/2 in. wire	1
Air proving switch	1
Exhaust fan	1
Duct kit (12 ft. x 6 in.)	1

Tools required:

- Electric drill with 1/8 in. drill bit
- Electrical wire stripping / crimping tool
- 1/4 in. and 5/16 in. nut drivers
- Standard screwdriver
- Small adjustable wrench
- Saw
- Level

Materials required:

- Sealant caulk
- Framing material (if needed)
- Approved electrical wiring of proper gauge
- Electrical fittings
- Electrical junction box
- Electrical tape

Qualifications for installation:

- You must read and understand these instructions before beginning the installation.
- You must have sufficient experience to install the kit and test for proper operation.
- All wiring must be done in accordance with local codes. In absence of local codes, follow ANSI/NFPA 70, National Electrical Code.

General Information

Proper installation for heaters located within the greenhouse requires air exchange as follows:

An exhaust fan capable of providing the following discharge air:

- Therma Grow™ 120/120 Plus heaters: 300 cfm.
- Therma Grow™ 220/220 Plus heaters: 550 cfm.

A shuttered air inlet louver of 120 sq. in. area used with an L.B.White specified air inlet duct kit with restrictor plate. The inlet shutter and exhaust fan must be electro-mechanically operated and electrically interlocked with the heater.

Discussion

This kit consists of a properly sized motorized air inlet shutter, flexible duct, and exhaust fan. All items must be installed when the heater is located within the greenhouse.

A. Air Inlet Location

Ideally the air inlet shutter should be located as shown in Fig. 1A, 1B, and 1C. However, it may also be installed in any other location on the end or side wall, especially if water, gas, or electrical lines create interference. See Fig. 1D for alternate locations at end or side walls.

Regardless of air inlet location, the flexible duct (included) must be installed. The duct must be cut to proper length to prevent sagging and kinks from preventing proper air flow to the heater. Separate duct installation instructions are provided in the duct kit.

FIG. 1A Blower Outlet View

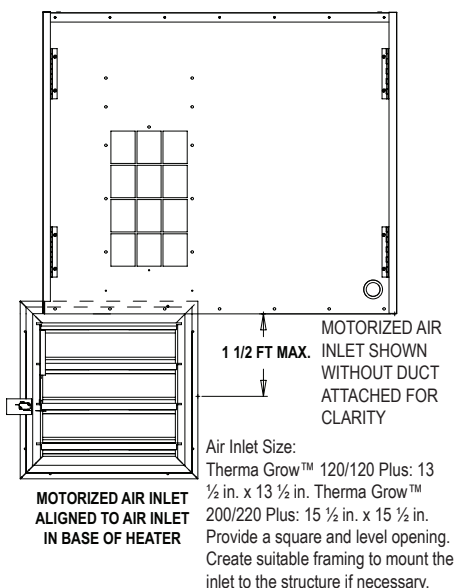


FIG. 1B Underside View

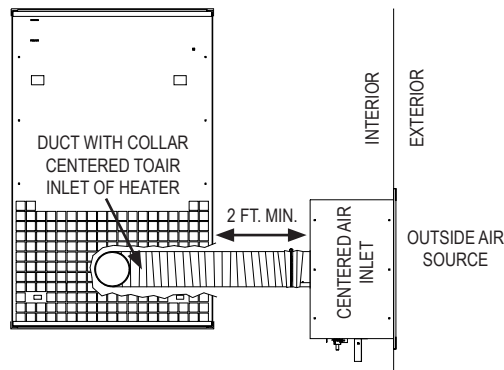


FIG. 1C Side View

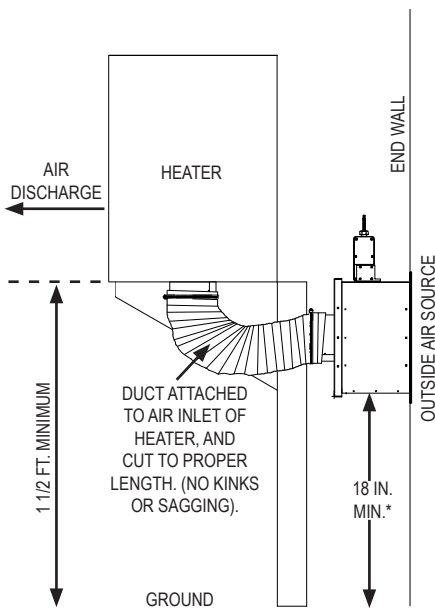
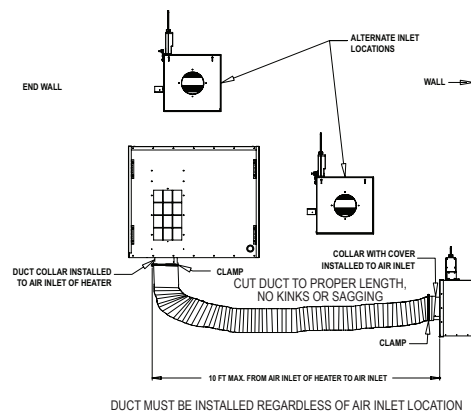


FIG. 1D Alternate Air Inlet Locations



* THE MOTORIZED AIR INLET MUST BE INSTALLED A MINIMUM OF 18 IN. ABOVE THE GROUND OR TO A HEIGHT NECESSARY TO PREVENT BLOCKAGE FROM OBSTRUCTIONS (EXAMPLES: SNOW, EXTERIOR PLANT GROWTH, ETC.)

B. Air Inlet Installation and Assembly (Refer to Fig. 2)

1. From the exterior, slide the air inlet through the opening. The inlet's mounting flange must be located against the flat exterior of the building. Mark and drill 1/8 in. pilot holes at all flange screw holes. Secure the inlet to the wall with the screws provided. Seal the inlet's flange edges.
2. Evenly position the air inlet hood over the inlet at the exterior of the building. Mark and drill 1/8 in. pilot holes at all flange holes. Secure the inlet hood to the exterior wall with screws from kit. Seal the hood's flange edges.
3. Assemble the motor with bracket to the air inlet transition sleeve. Use the nuts and screws from the kit. Do not tighten at this time
4. Assemble the motor arm to air inlet's linkage arm. See detail in Fig. 2. Tighten the screw securely.
5. Push the motor with bracket toward the wall until slots in bracket stop against mounting screws, and shutters are fully closed. Securely tighten all motor bracket screws. See detail in Fig. 2.
6. Mount the air proving switch assembly to the transition sleeve. Tighten the mounting screws securely.

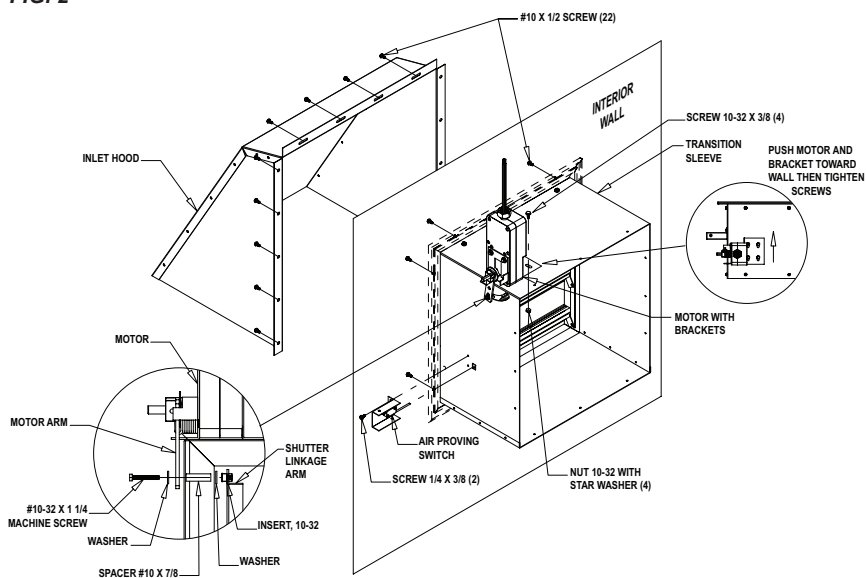
C. Locating and Installing the Exhaust Fan

1. **The exhaust fan must be located at an upper area of the end wall opposite from the heater, preferably in an area higher than the heater's discharge. See Fig. 3. The exhaust fan does not need to be directly in line to the heater.**
 2. Provide a 10 1/4 in. x 10 1/4 in. square and level opening. Suitable framing may be required for mounting.
 3. Position the kit through the opening from the inside of the greenhouse. The shutters are gravity operated and must be installed so the shutters drop to closed after being lifted open.
- Check the assembly with a level before installing.
 - Mark and drill 1/8 in. pilot holes at all locations in the exhaust fan's mounting flange.
 - Secure with 1/2 in. screws from the kit. See Fig. 4.
 - Seal the appropriate areas to prevent water entry.

D. Wiring the Exhaust Fan and Air Inlet Shutter Motor to the Heater

1. Select a location for an electrical junction box near the heater. Mount the junction box.
 2. Open the heater's control box. Remove the hole plug from the control box base and the wire cap(s) from the wire(s) labeled TO VENTILATION MOTORS. See Fig. 5.
 3. Route an appropriate length and gauge of electrical wiring from the junction box up to the bottom of the control box and through this hole.
 4. Connect an appropriate length and gauge of electrical wiring to the leads of the exhaust fan motor and air inlet shutter motor.
- Route this wiring to the electrical junction box and connect it to the wiring leading to the heater's control box.
 - Use wire nuts provided.
 - Refer to the appropriate electrical connection diagram on page 6.
5. Proceed to further wiring instructions, page 4, for the Therma Grow™ 120 Plus/220 Plus or Therma Grow™ 120/220 heaters.

FIG. 2



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FIG. 3

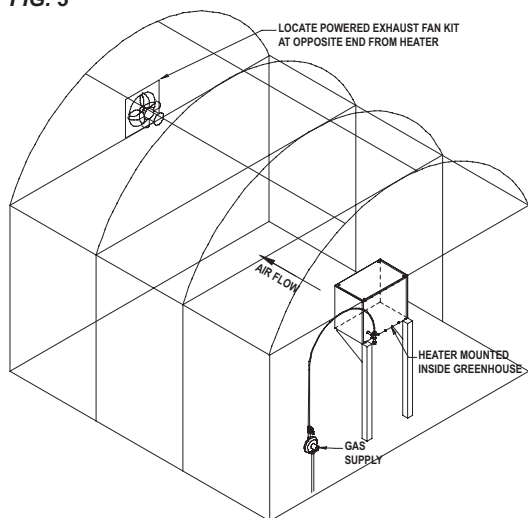
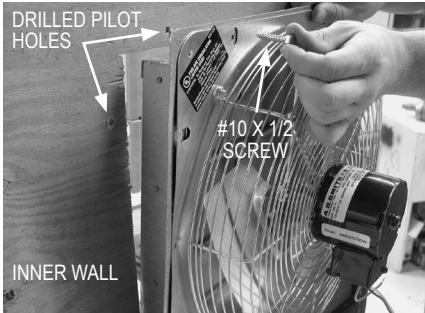
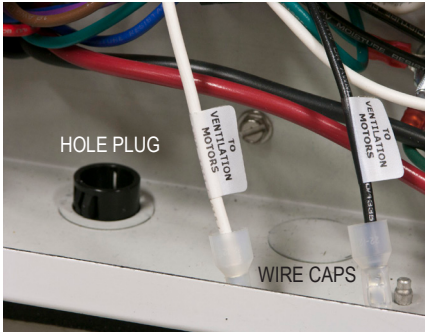


FIG. 4**FIG. 5**

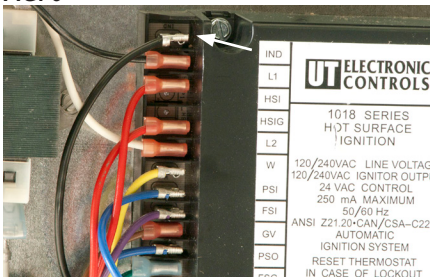
Therma Grow™ 120 Plus or 220 Plus Heaters

Connect the wiring from the junction box to the heater's control box as follows:

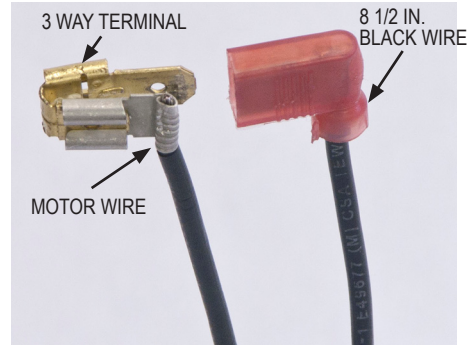
- Black and white wires to wiring labeled TO VENTILATION MOTORS. See Fig 5
 - Use wire nuts provided in the kit.
- Green ground wire to ground screw.
 - Use the spade terminal from the kit. Proceed to Section E.

Therma Grow™ 120 or 220 Heaters

- Disconnect the black motor wire at the ignition control terminal marked IND. See Fig.6.

FIG. 6

- Connect the kit's 8 1/2 in. black wire and the motor wire to the kit's three way terminal. See Fig.7. Connect this assembly to terminal IND on the ignition control.

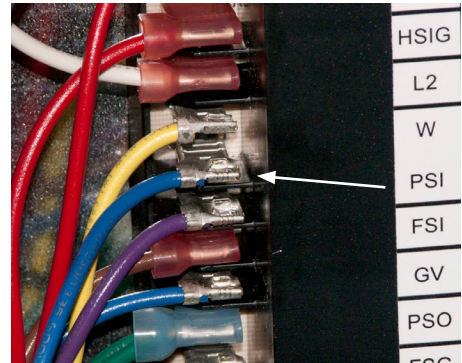
FIG. 7

- Connect the wiring from the junction box to the heater's control box as follows. Use wire nuts supplied for a. and b.:

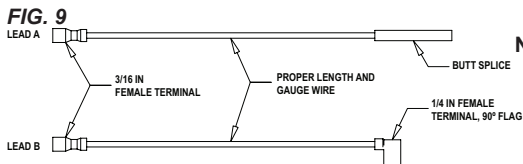
- Black wire to the stripped end of the black 8 1/2 in. wire.
- White wire to the white wire in the control box labeled TO VENTILATION MOTORS.
- Green ground wire to the ground screw.
 - Use the spade terminal from the kit. Proceed to Section E.

E. Wiring the Air Proving Switch at Air Inlet to the Heater's Control Box

- Disconnect the blue wire from terminal PSI on the ignition control. Remove the terminal from this lead and strip back its insulation about 1/4 in. See Fig. 8.

FIG. 8

2. Make two electrical leads of proper length and gauge. Attach terminals from the kit to these leads. See Fig. 9.



3. Connect the leads as follows. Refer to appropriate wiring diagram on page 6.

Lead A

- Connect the end with the 3/16 in. terminal to either terminal of air proving switch at the air inlet.
- Route the other end with the butt splice up through the bottom of the control box
- Connect the butt splice to the blue lead in the control box which had its terminal removed.

Lead B

- Connect the end with 3/16 in. terminal to remaining terminal on air proving switch at air inlet.
- Route the other end of this lead up through the bottom of the control box.
- Connect the 1/4 in. flag terminal from the kit to this wire and connect this to terminal PSI on the ignition control.

F. Completion

1. Secure all the wiring at the junction box and control box with electrical fittings capable of preventing wire abrasions and providing protection against dirt and moisture entry.
2. Verify the completed wiring matches the appropriate wiring diagram on page 6.
3. Connect the heater to its electrical and gas supplies and test the installation by starting the heater.

NOTE: Connection with a thermostat or building controller is required for further operation. Refer to heater's Owner's Manual for control wiring instructions. Ensure 115 VAC is supplied to the exhaust fan motor and air inlet shutter motor. Both will operate when the heater starts.

- a. On start-up, the heater's fan motor will run for 5 seconds. During this time the air inlet shutter motor will open the inlet, and the exhaust fan will start.

- b. After 5 seconds, the heater's fan motor will stop. When the heater's fan motor stops, the shutter motor will close the air inlet and the exhaust fan motor will stop.

Note: This is normal operation. The ignition control is checking the air proving switch at the air inlet and in the heater for proper operation before allowing an ignition trial to continue.

- Shortly after the heater ignites, shut the heater down.
 - The exhaust fan motor will stop.
 - The motor on the air inlet will gradually close the shutters.
 - Ensure the inlet and exhaust fan shutters close completely and do not bind.
- 4. Install the air proving switch cover over the switch assembly at the air inlet. See parts schematic FIG. 10.
- 5. Wrap the butt splice and wire nuts with electrical tape.
- 6. Close and latch the control box and set the greenhouse thermostat to desired temperature.
- 7. Ensure the motorized air inlet, the heater's air inlet, and exhaust fan are kept free of any blockages.
- 8. Keep these instructions for future reference.

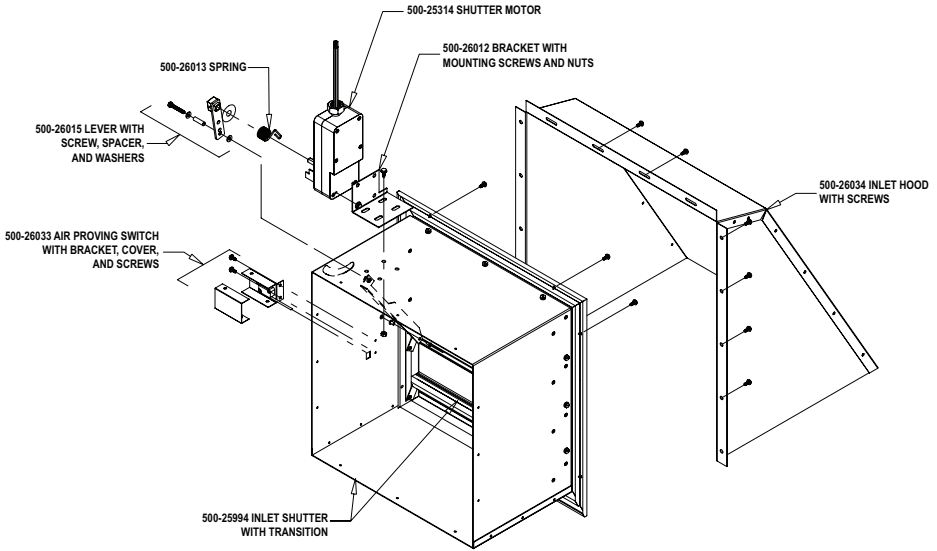
G. Parts Ordering Information

See Fig.10 for inlet shutter components. The exhaust fan is available only as a complete assembly. Exhaust fan part numbers:

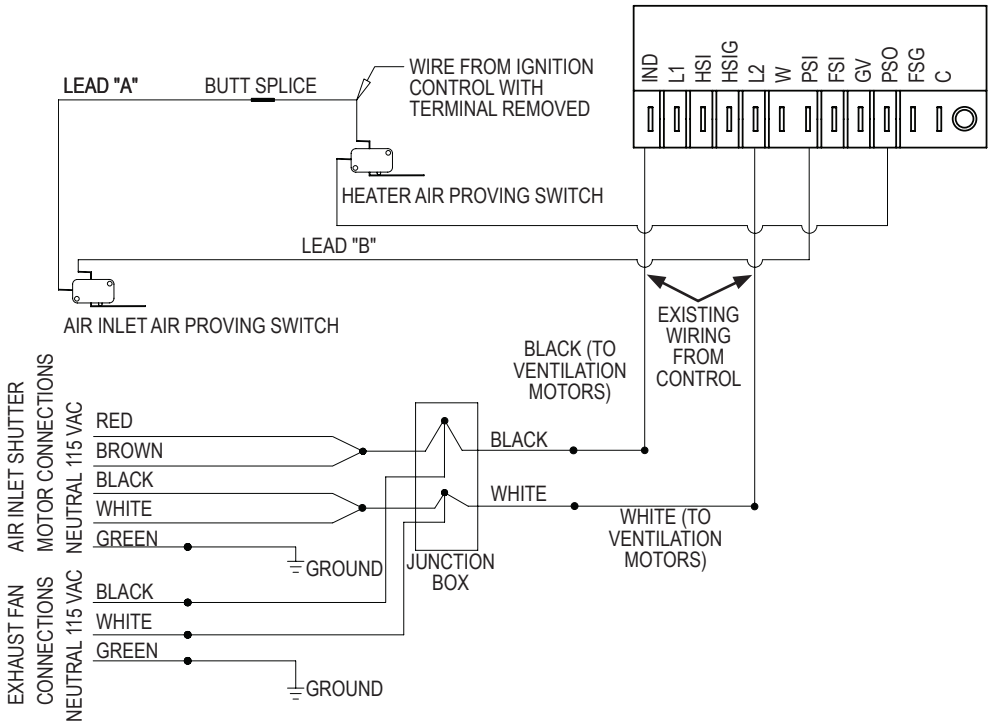
- Therma Grow™ 120 and 120 Plus: 24742
- Therma Grow™ 220 and 220 Plus: 24741

All parts referred to in this instruction are available by contacting L.B. White Co., LLC at (800) 345-7200 from 7:00 a.m. to 5:00 p.m. Central Standard Time.

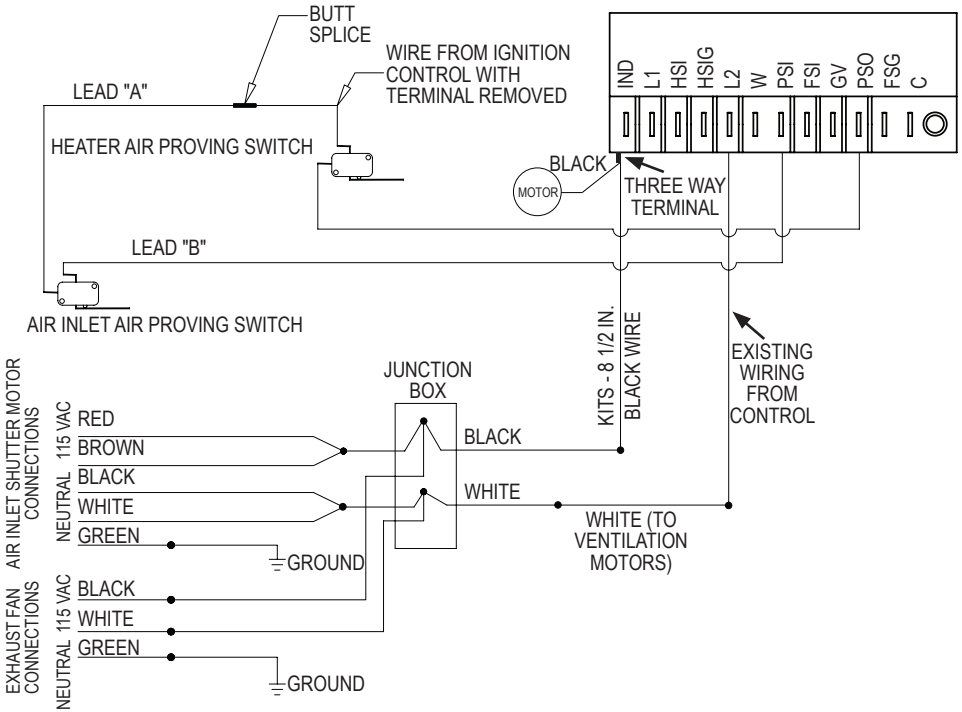
FIG. 10



Therma Grow™ 120 Plus and 220 Plus
Wiring the Air Inlet and Exhaust Fan



Therma Grow™ 120 and 22
Wiring the Air Inlet and Exhaust Fan



Service

Contact your local L.B. White dealer for replacement parts and service. You may also call the L.B. White Co., LLC at U.S. & Canada: 1-800-345-7200, Overseas: 001-608-783-5691 assistance, or email us at customerservice@lbwhite.com.

Be sure that you have your heater model number and configuration number when calling.



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