

Installation Instructions

2 Stage Variable Speed Blower Kit for Gas Furnace Applications

WARNING!

To avoid the risk of electrical shock, personal injury, or death, disconnect electrical power before installing this kit or performing maintenance.

Before beginning installation, read these instructions thoroughly and follow all warning and cautions in these instructions and on the unit. These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/ service personnel for this type of equipment. Improper installation, service, adjustment, or maintenance can cause fire, electrical shock or other conditions which may result in personal injury or property damage. Unless otherwise noted in the instructions, only factory authorized kits or accessories may be used when modifying this product.

1. SPECIFICATIONS

The two stage variable speed blower kit, 904076 is designed for installation in two stage variable speed gas furnaces. This kit may be field-configured for air conditioning/heat pump airflows from 2 to 5 tons nominal capacity. Kit number 904402 is designed for "A" cabinet furnaces. This kit may be field-configured for air conditioning/heat pump airflows from 1-1/2 to 3 tons nominal capacity.

2. INSTALLATION REQUIREMENTS

All installations shall be made as described in the installation instructions and in accordance with applicable national and local codes including the requirements of local utilities.

3. INSTALLATION

UPFLOW INSTALLATIONS

1. Disconnect electrical power to the furnace.
2. Remove the upper and lower access doors from the furnace.
3. Remove the electrical plug containing the blower wires from the receptacle located on the left side of the blower deck.
4. Remove screws
5. Remove the blower assembly from the furnace.
6. Attach the blower mounting bracket to the replacement blower. The brackets are included with kit or may be taken from the old blower.
7. Slide the variable speed blower kit into the furnace. Be sure that the sides of the blower are captured by all of the blower mounting tabs in the blower deck. Secure with the two screws removed in step 4.

8. Route the bundle of wires coming from the control box of the kit through the extra hole in the blower deck. Secure the wires through the hole using the strain relief bushing provided.

DOWNFLOW INSTALLATIONS

NOTE: Please remove wire harnesses and control box from the new replacement blower assembly.

1. Disconnect electrical power to the furnace.
2. Remove furnace access door(s)
3. Remove top and bottom screws on the control panel that is located on the blower access door and then remove control panel from the access door. Note: Do not remove wires from the control panel and let it hang on the furnace.
4. Remove the flue pipe.
5. Remove screws both side of blower access panel and slide it out.
6. Unplug two wire harness connectors from blower and remove screws from front of blower legs.
7. Slide blower out of furnace.
8. Re-install two wire harnesses on the new blower motor and then, install the new blower assembly into furnace.
9. Reassemble all the parts that you removed by reverse order.

Determining Nominal System Capacity (A/C & H/P)

In order to select the appropriate airflow for AC and HP operation the nominal system capacity must be known. The nominal system capacity is ALWAYS the nominal capacity of the outdoor unit. In some cases the nominal system capacity is not the same as the nominal capacity of the indoor coil.

Selecting The Cooling/Heat Pump Airflow

The cooling/heat pump airflow is selected by setting switches 1 through 4 on the motor control board located in the blower control panel. All airflows for other modes of operation (except gas heat) are determined by this setting. Table 1 shows the airflow values versus the airflow selector switch settings, and the range of airflow settings recommended for each nominal system capacity.

NOTE: The CFM values listed in the tables are not dependent on duct static pressure. The motor automatically compensates for changes in duct static pressure (within the limits of the motor).

For maximum capacity and energy efficiency, generally, a selection at or near the top of the CFM range for that nominal capacity is best. For maximum dehumidification, select an airflow near the middle or bottom of the CFM range for that nominal capacity.

CAPACITIES —Furnace Airflow Data

CFM		SWITCH NUMBER							Nominal A/C and HP	
LOW	HIGH	1	2	3	4	5	6	7	Capacity	
300	400	0	0	0	1					
330	480	0	0	0	0					
390	550	0	0	1	0					1 TON
420	600	1	0	0	1					1.5 TON
500	720	1	0	0	0					2 TON
550	800	1	0	1	0					2.5 TON
580	830	0	1	0	1					3 TON
640	930	0	1	0	0					
700	1010	1	1	0	1					
730	1070	0	1	1	0					
780	1140	1	1	0	0					
850	1230	1	1	1	0					

Note: O = Off 1 = On

**Table 1a. *TC/L 060 (1/2 HP)
Cooling/Heat Pump Airflow Settings**

CFM		SWITCH NUMBER							Nominal A/C and HP	
LOW	HIGH	1	2	3	4	5	6	7	Capacity	
500	720	0	0	0	1					
550	800	0	0	0	0					
610	880	0	0	1	0					2 TON
650	945	1	0	0	1					2.5 TON
720	1050	1	0	0	0					3 TON
800	1155	1	0	1	0					3.5 TON
900	1305	0	1	0	1					4 TON
1000	1450	0	1	0	0					5 TON
1060	1530	1	1	0	1					
1100	1595	0	1	1	0					
1170	1700	1	1	0	0					
1290	1870	1	1	1	0					

Note: O = Off 1 = On

**Table 1b. *TC/L 080/100/120 (3/4 HP)
Cooling/Heat Pump Airflow Settings**

Nominal Airflow (CFM) and Temperature Rises (degree F)																		
			*T(C,L)-060(CN)-VA Models				*T(C,L)-080(CN)-VB Models				*T(C,L)-100 (CN)-VB Models				*T(C,L)-120(CN)-VC Models			
Switches			Low Fire Input 43,000	High Fire Input 60,000	Low Fire Input 43,000	High Fire Input 60,000	Low Fire Input 43,000	High Fire Input 60,000	Low Fire Input 43,000	High Fire Input 60,000	Low Fire Input 43,000	High Fire Input 60,000	Low Fire Input 43,000	High Fire Input 60,000	Low Fire Input 43,000	High Fire Input 60,000	Low Fire Input 43,000	High Fire Input 60,000
5	6	7																
0	0	#	600	60	700	75	660	72	1090	63	660	90	1090	80	660	108	1090	96
1	0	#	660	54	800	65	750	64	1240	57	750	80	1240	70	750	95	1240	84
0	1	#	800	45	1048	50	1220	40	1680	42	1220	49	1680	52	1220	59	1680	62
1	1	#	900	40	1296	40	1300	37	1880	37	1300	46	1880	46	1300	55	1880	56

Switch not used - Can be 0 or 1.

Table 2a. Heating Airflow Settings, 90+ Models

Nominal Airflow Rates (CFM) and Temperature Rises (Degree F)														
			*TA 072-VB Models				*TA 096-VB Models				*TA 120-VC Models			
Switches			Low Fire Input	High Fire Input	Low Fire Input	High Fire Input	Low Fire Input	High Fire Input	Low Fire Input	High Fire Input	Low Fire Input	High Fire Input	Low Fire Input	High Fire Input
5	6	7												
			50,000	72,000	67,000	96,000	84,000	120,000						
0	0	#	660	54	1090	50	660	73	1090	63	660	92	1090	84
1	0	#	750	48	1240	44	750	64	1240	58	750	80	1240	74
0	1	#	1220	30	1680	33	1220	40	1680	41	1220	50	1680	55
1	1	#	1300	28	1880	29	1300	37	1880	36	1300	47	1880	49

Switch not used - Can be 0 or 1.

Notes:

1. Recommended temperature rises are highlighted in bold.
2. Airflow rates of 1800 CFM or more require two return air connections. Data is for operation with filter(s).
3. Temperature rises in the table are approximate. Actual temperature rises may vary.
4. Temperature rises that are shaded grey are for reference only. These conditions are not recommended.
5. For single stage cooling, reference the CFM listed in the high column.

Table 2b. Heating Airflow Settings, 80+ Models

NOTE: If coil icing is observed, the cooling/heat pump airflow selected may be too low. Double-check to be sure the setting selected is within the range shown in Table 1. Also check to be sure the system is properly charged (see outdoor unit Installation Instructions). If icing continues to occur, raise the selected airflow one or two steps.

Selecting The (Gas) Heating Airflow

The heating airflow is selected by setting switches 5 and 6. Refer to Table 2 and select a nominal rise based on the input and temperature rise. Follow the table to find the switch setting and nominal air-flow. Be sure that the selected rise is within the specification of the furnace as shown on the furnace rating label.

5. SYSTEM OPERATION

Cooling or Heat Pump Mode

When the thermostat calls for cooling or heat pump heating the circuit between R, G, and Y (O is ignored by the blower) is completed and the blower begins a pre-programmed on-cycle "profile". First, the blower ramps up to approximately 1/3 of the selected airflow and stays there for 30 seconds. Next, the blower ramps up to approximately 3/4 of the selected airflow and stays there for another 30 seconds. The blower then ramps

up to the selected airflow until the thermostat is satisfied. A one-minute off-cycle delay at approximately 1/2 of the selected airflow is initiated when the call from the thermostat ends.

NOTE: The use of a fossil fuel kit is required when using a heat pump with a gas furnace.

(Gas) Heating Mode

When the thermostat calls for heating the circuit between R and W is completed. The furnace control board initiates the ignition sequence. When the gas valve is energized a signal is transmitted to the blower through the wiring added in the blower installation procedure. The blower will start and run at a very low speed. After 30 seconds, the blower ramps up to the selected heating airflow. The blower will operate two minutes after the call for heating is removed. **NOTE:** Off-cycle delay settings on the furnace control board no longer control off-cycle blower timing. The off-cycle blower timing is preprogrammed into the variable speed blower and is not adjustable.

Manual Fan

When the manual fan switch on the thermostat is on, energizing G only, the blower will ramp to 50% of the selected cooling/heat pump airflow.

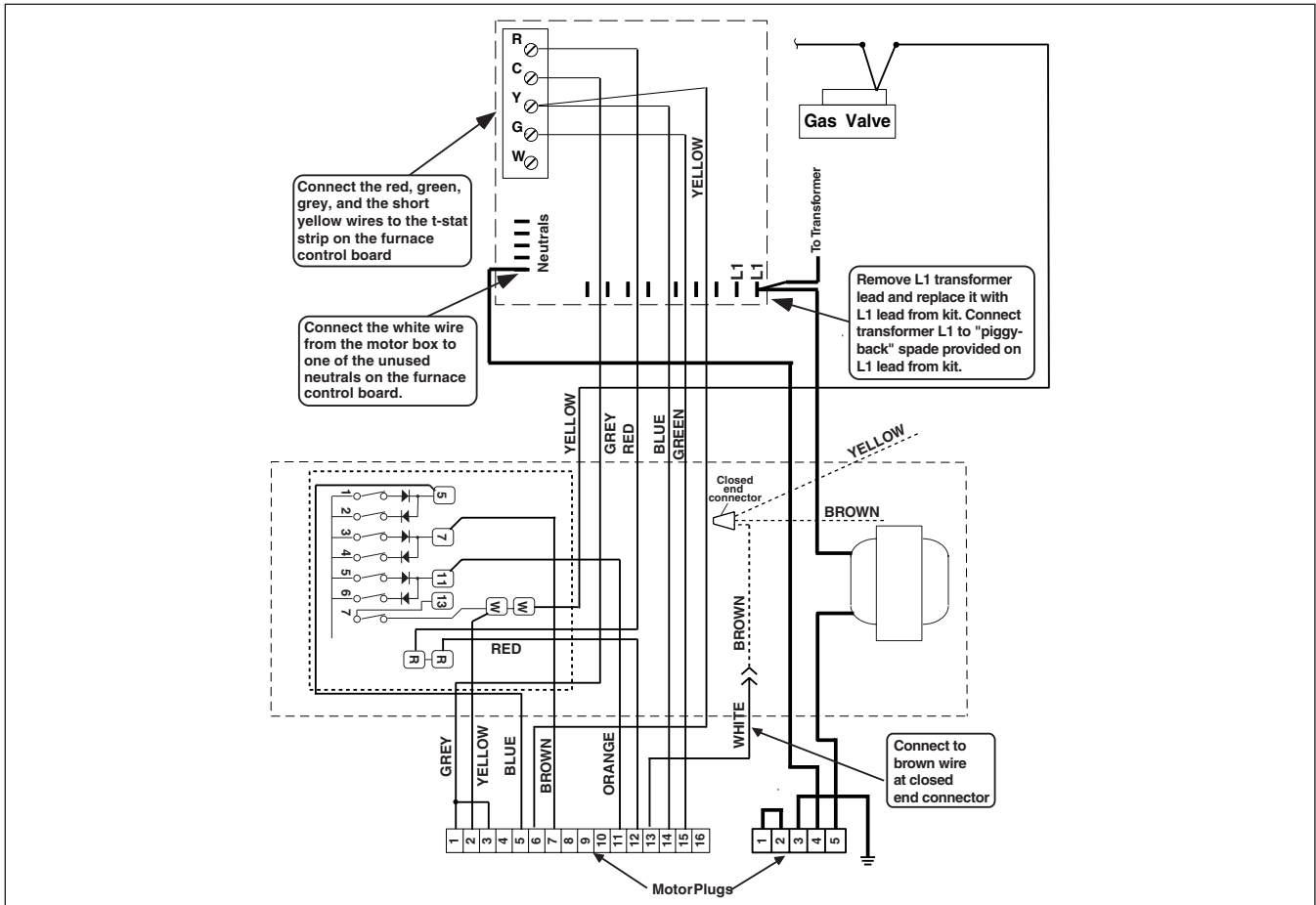


Figure 1. Wiring Diagram

