Nordic Electronics Ltd. # FAST-STAT 3000 **1-800-775-4750**

Product Description

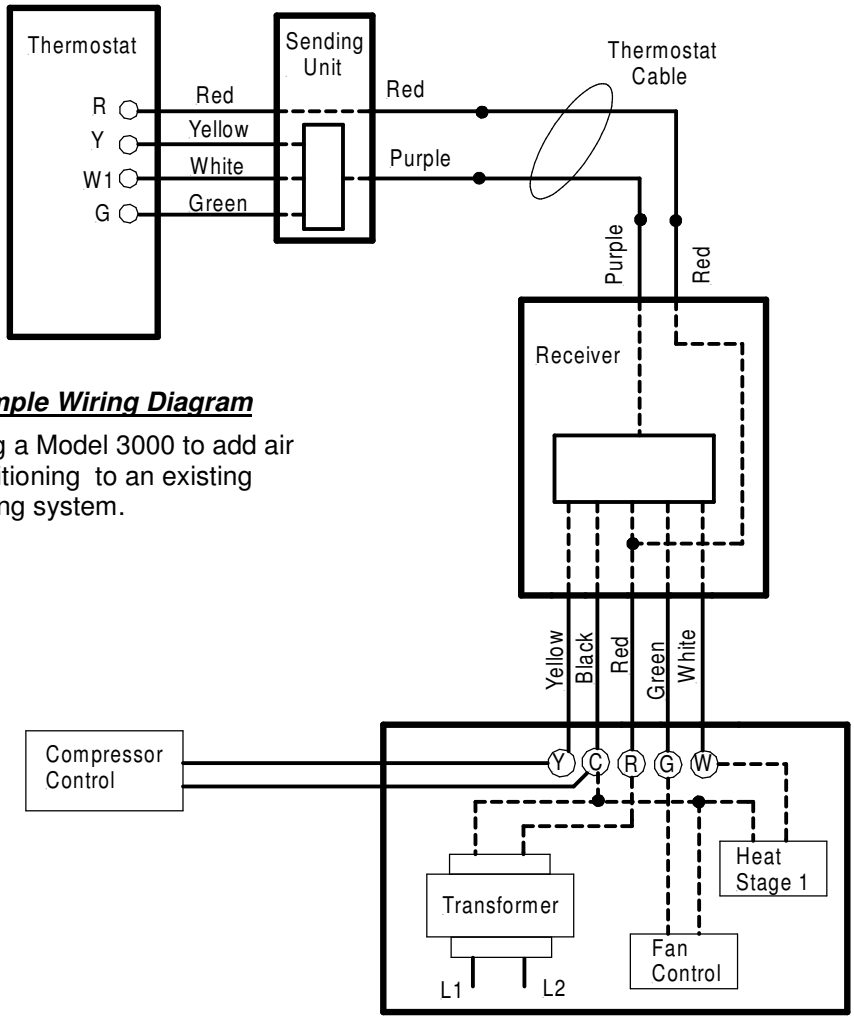
The **FAST-STAT Model 3000** provides 4-wire control over 2-wire cable or 6-wire control over a 4-wire cable. With a 2-wire cable it can provide “R”, “W”, “G” & “Y”. With a 4-wire cable it can provide “R”,”W”,”Y”,”G” + any two of “C”, “D”, “W2”, “Y2” or “O/B”.

Common Uses

Adding air conditioning to a heating system. Can also be used for heat pumps, 2-stage heating or cooling when an existing 4-wire thermostat cable is present.

Ratings

Power Input: 20 – 30 volts AC.
Contacts: 3 Normally Open
Contact Rating: 2 Amps, 24 volt AC



Furnace Wiring

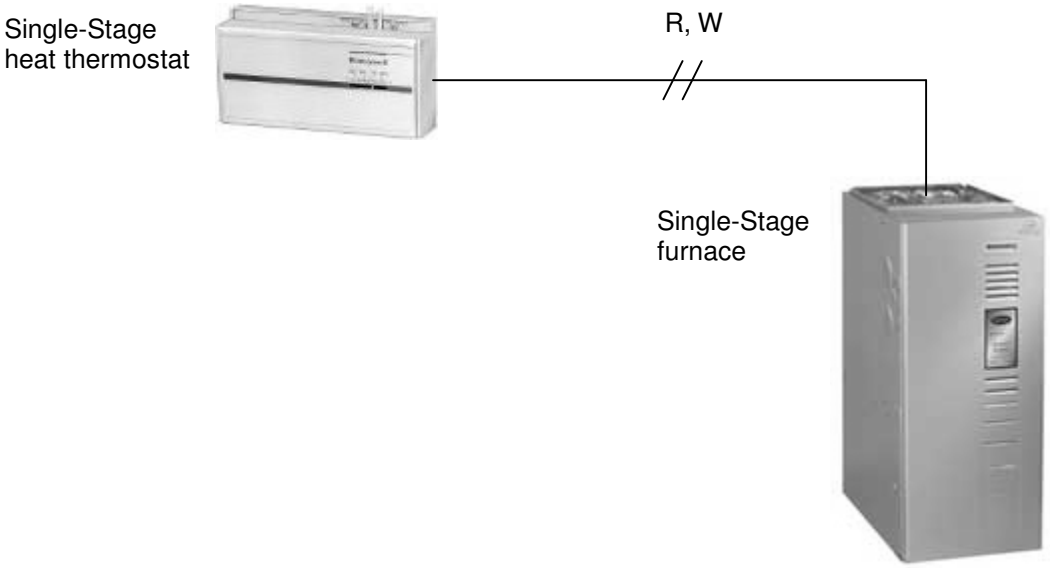
Example Wiring Diagram

Using a Model 3000 to add air conditioning to an existing heating system.

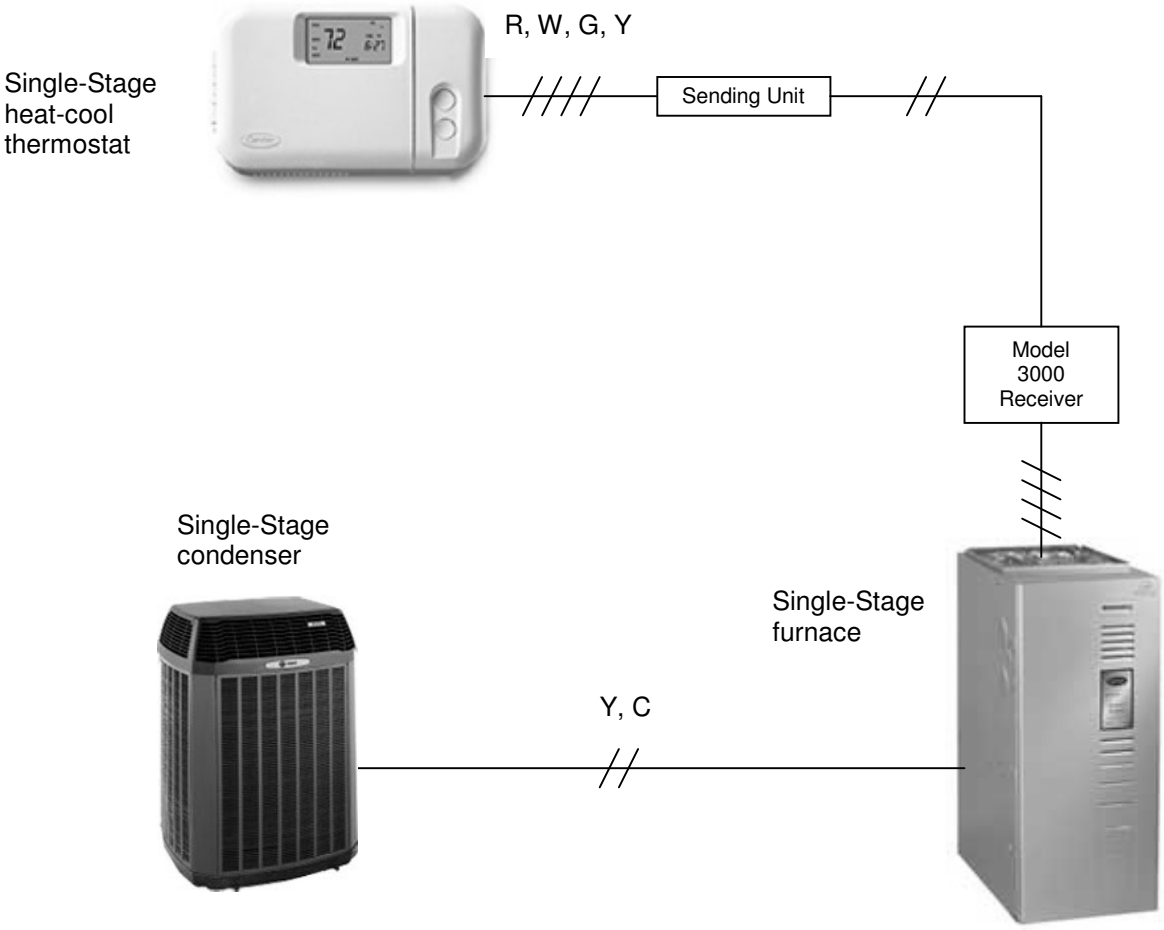
Web Site	E-mail	Fax	Address
www.fast-stat.com	info@fast-stat.com	250-764-6100	PO Box 25033, Kelowna, BC, V1W 3Y7

EXAMPLE: **FAST-STAT** model 3000 used to add air conditioning.

OLD SYSTEM



NEW SYSTEM



FAST-STAT Model 3000 Installation Overview

Application

1. The model 3000 FAST-STAT is a multipurpose controller designed to reduce installation time when adding or retrofitting HVAC equipment.

2. With a 2-wire thermostat cable it can provide R, W, Y & G. With a 4-wire thermostat cable it can be used for a wide range of applications including heat pumps.

Before installing this product

1. Read instructions. If you have any questions please contact tech support line at the number listed below.

2. This product is designed for use only on 24 volt ac circuits supplied by a class 2 transformer.

3. This product is only to be installed by qualified technicians.

4. To avoid risk of electrical shock or equipment damage disconnect power before beginning installation.

Operational Considerations

1. A call for Compressor (Y) will always switch on Fan (G). The white channel (W) is independent of the Yellow and Green channels. This information is provided for reference when using the model 3000 in other applications such as heat pumps.

2. The power supply must be between 20 to 30 volts for correct operation. The total connected load must not exceed 2 amps.

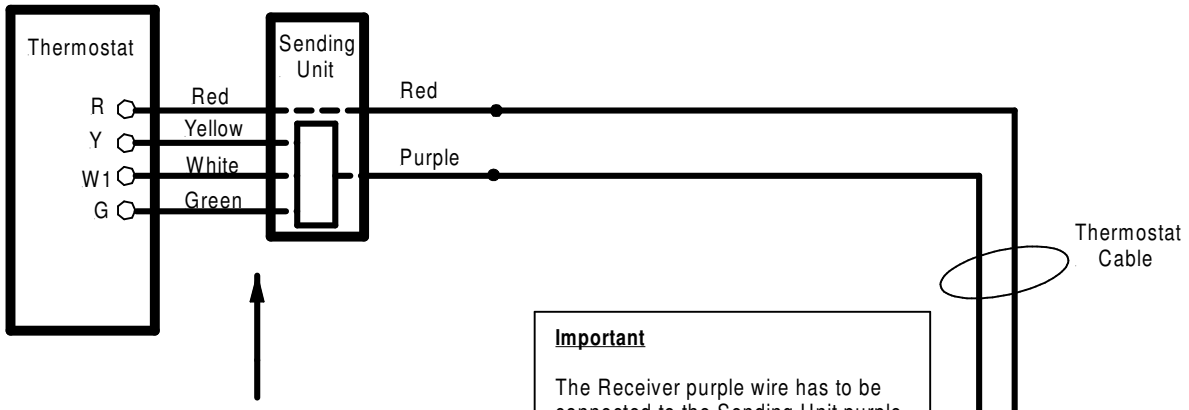
Table 1. Terminal designation descriptions

Terminal Designation	Description	Comment	Color
R	Transformer Power	Included & must be connected	Red
C	Transformer Common	Included & must be connected at Receiver	Black
Y - Y1	Compressor Stage 1	Included	Yellow
Y2	Compressor Stage 2	Requires additional thermostat cable conductor	Not defined
G	Fan	Included	Green
W1	1st Stage Heat	Included	White
W2	2nd Stage Heat	Requires additional thermostat cable conductor	Not Defined
O/B	Reversing Valve	Requires additional thermostat cable conductor	Not Defined

Tech Support: 1-800-775-4750

FAST-STAT Installation Guide A

Model 3000 Typical Installation when used with 2-wire thermostat cable.



Important

The Receiver purple wire has to be connected to the Sending Unit purple wire. If they are crossed (Receiver purple to Sending unit red) then heat will start on a Fan or Cooling call and Fan & Cooling will start on a heat call. If this happens switch the Receiver red and purple wires connected to the thermostat cable here.

Step 1:

a) Remove the existing thermostat.
b) Enlarge the hole around the thermostat cable so that the Sending Unit can be inserted into the wall space.
c) Connect the wires from the Sending Unit to the corrosponding thermostat terminal. The two red wires are interchangable. Connect one to the thermostat "R" and the other to the thermostat cable.
d) Connect the purple wire to the thermostat cable.
e) Insert the Sending Unit into the wall space.
f) Mount the new thermostat according to mfg's instructions.

Step 2.

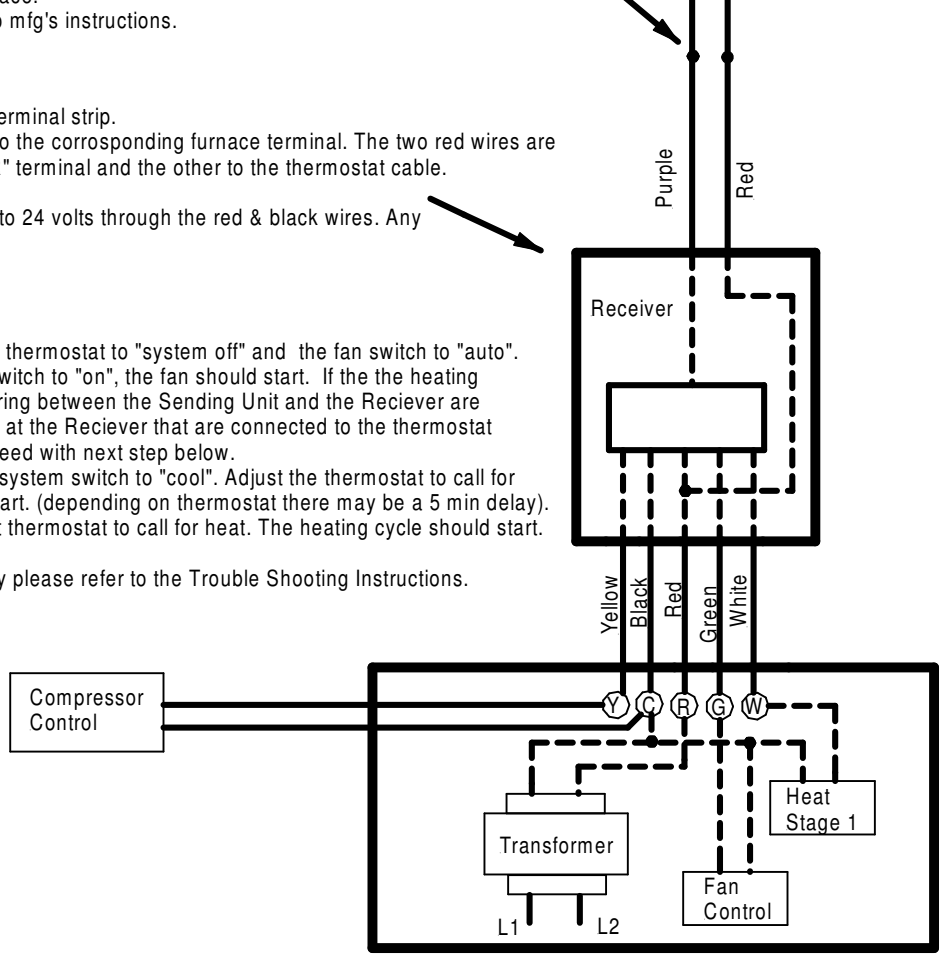
a) Install the Receiver near the furnace terminal strip.
b) Connect the wires from the Receiver to the corrosponding furnace terminal. The two red wires are interchangable, connect one to the "R" terminal and the other to the thermostat cable.

Note: The Receiver must be connected to 24 volts through the red & black wires. Any unused wires are taped back.

Step 3:

a) After all equipment is ready to run, set the thermostat to "system off" and the fan switch to "auto".
b) Switch on the control power. Set the fan switch to "on", the fan should start. If the the heating cycle starts then this indicates that the wiring between the Sending Unit and the Reciever are crossed. Reverse the Red & Purple wires at the Reciever that are connected to the thermostat cable and retest. After the fan works proceed with next step below.
c) Set the fan switch back to "auto" and the system switch to "cool". Adjust the thermostat to call for cooling. The fan and condensor should start. (depending on thermostat there may be a 5 min delay).
d) Set the system switch to "heat" and adjust thermostat to call for heat. The heating cycle should start.

Note: If the system does not operate properly please refer to the Trouble Shooting Instructions.

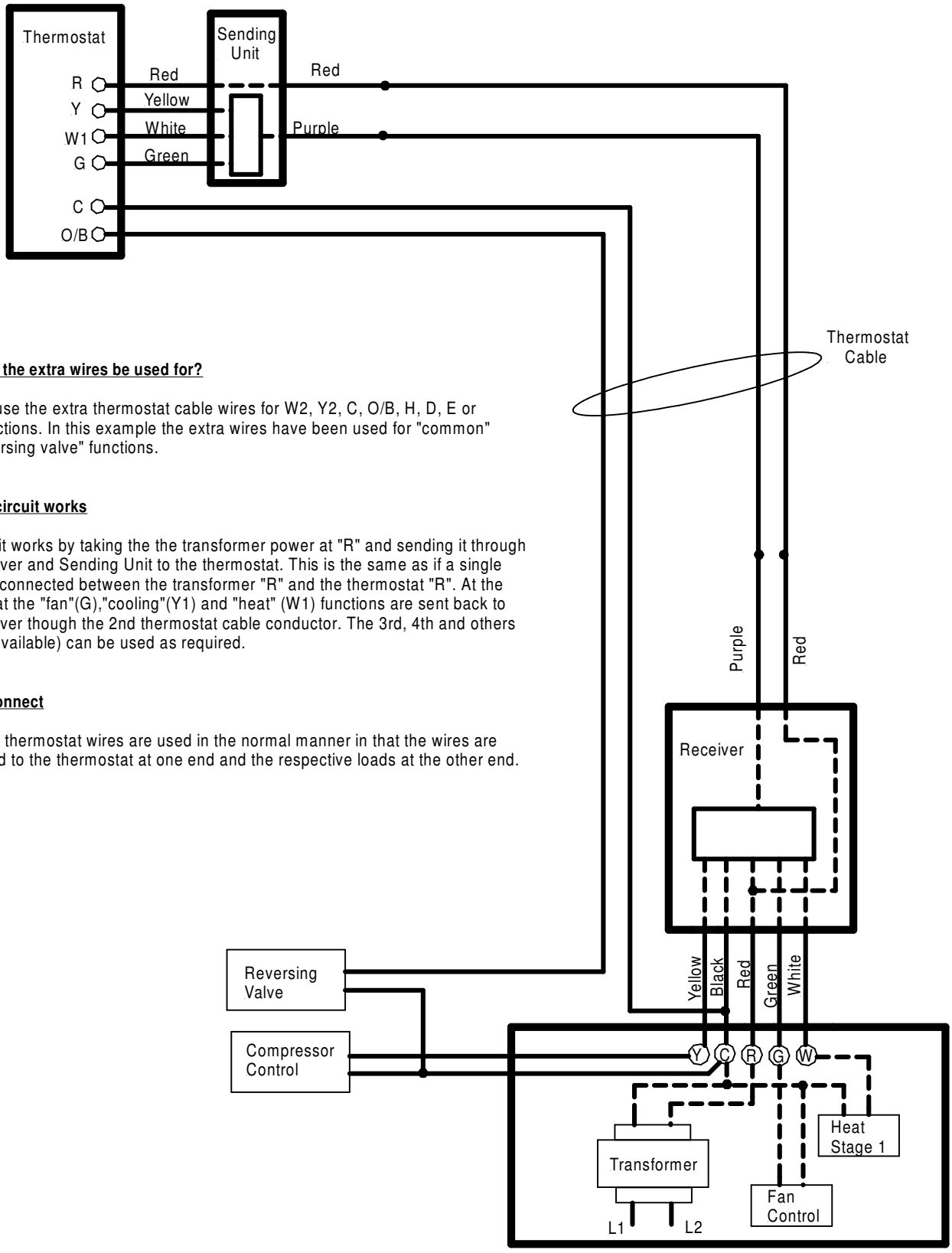


Furnace Wiring

FAST-STAT Installation Guide B

(read Installation Guide A first for basic instructions)

Using a Model 3000 with a thermostat cable that has more than 2 conductors.



Furnace Wiring

What can the extra wires be used for?

You can use the extra thermostat cable wires for W2, Y2, C, O/B, H, D, E or other functions. In this example the extra wires have been used for "common" and "reversing valve" functions.

How the circuit works

The circuit works by taking the the transformer power at "R" and sending it through the Receiver and Sending Unit to the thermostat. This is the same as if a single wire was connected between the transformer "R" and the thermostat "R". At the thermostat the "fan"(G),"cooling"(Y1) and "heat" (W1) functions are sent back to the Receiver though the 2nd thermostat cable conductor. The 3rd, 4th and others wires (if available) can be used as required.

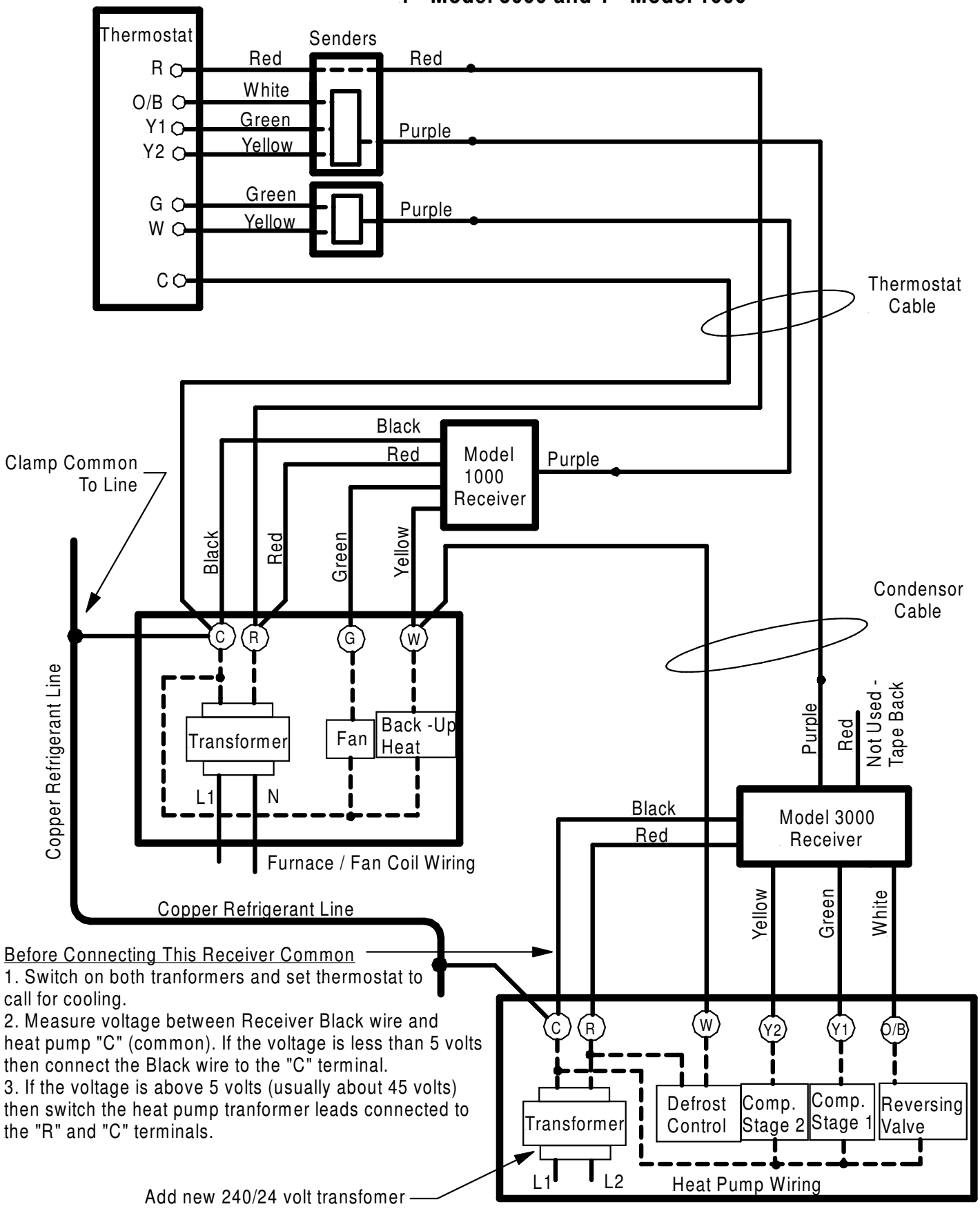
How to connect

The extra thermostat wires are used in the normal manner in that the wires are connected to the thermostat at one end and the respective loads at the other end.

FAST-STAT Installation Guide C

(read Installation Guide A & B first for basic instructions)

Single or 2-Stage Heat Pump using
1 - Model 3000 and 1 - Model 1000



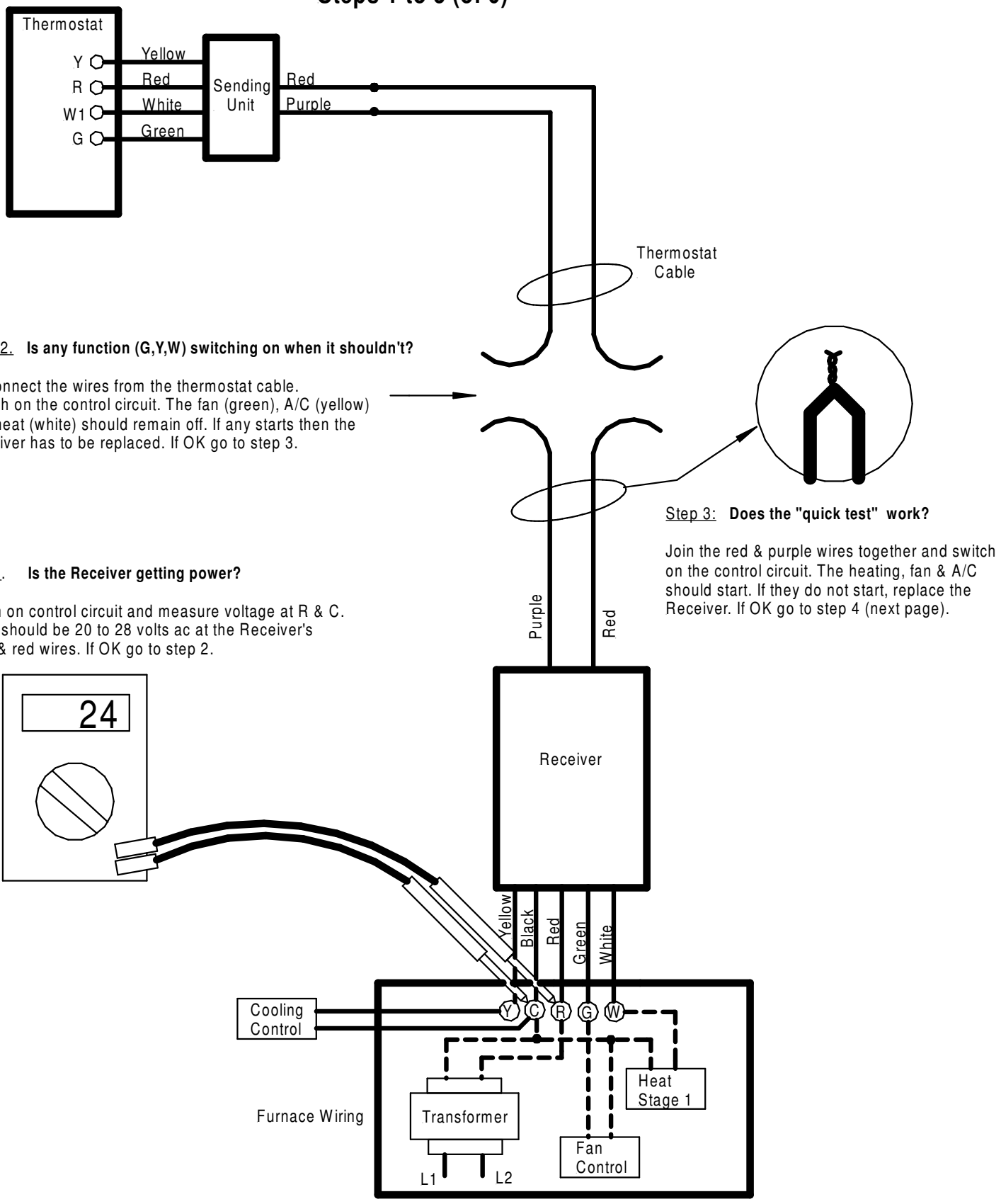
Before Connecting This Receiver Common

1. Switch on both tranformers and set thermostat to call for cooling.
2. Measure voltage between Receiver Black wire and heat pump "C" (common). If the voltage is less than 5 volts then connect the Black wire to the "C" terminal.
3. If the voltage is above 5 volts (usually about 45 volts) then switch the heat pump tranformer leads connected to the "R" and "C" terminals.

FAST-STAT Trouble Shooting Instructions

Model 3000

Steps 1 to 3 (of 6)



Step 2. **Is any function (G,Y,W) switching on when it shouldn't?**

Disconnect the wires from the thermostat cable. Switch on the control circuit. The fan (green), A/C (yellow) and heat (white) should remain off. If any starts then the Receiver has to be replaced. If OK go to step 3.

Step 3: **Does the "quick test" work?**

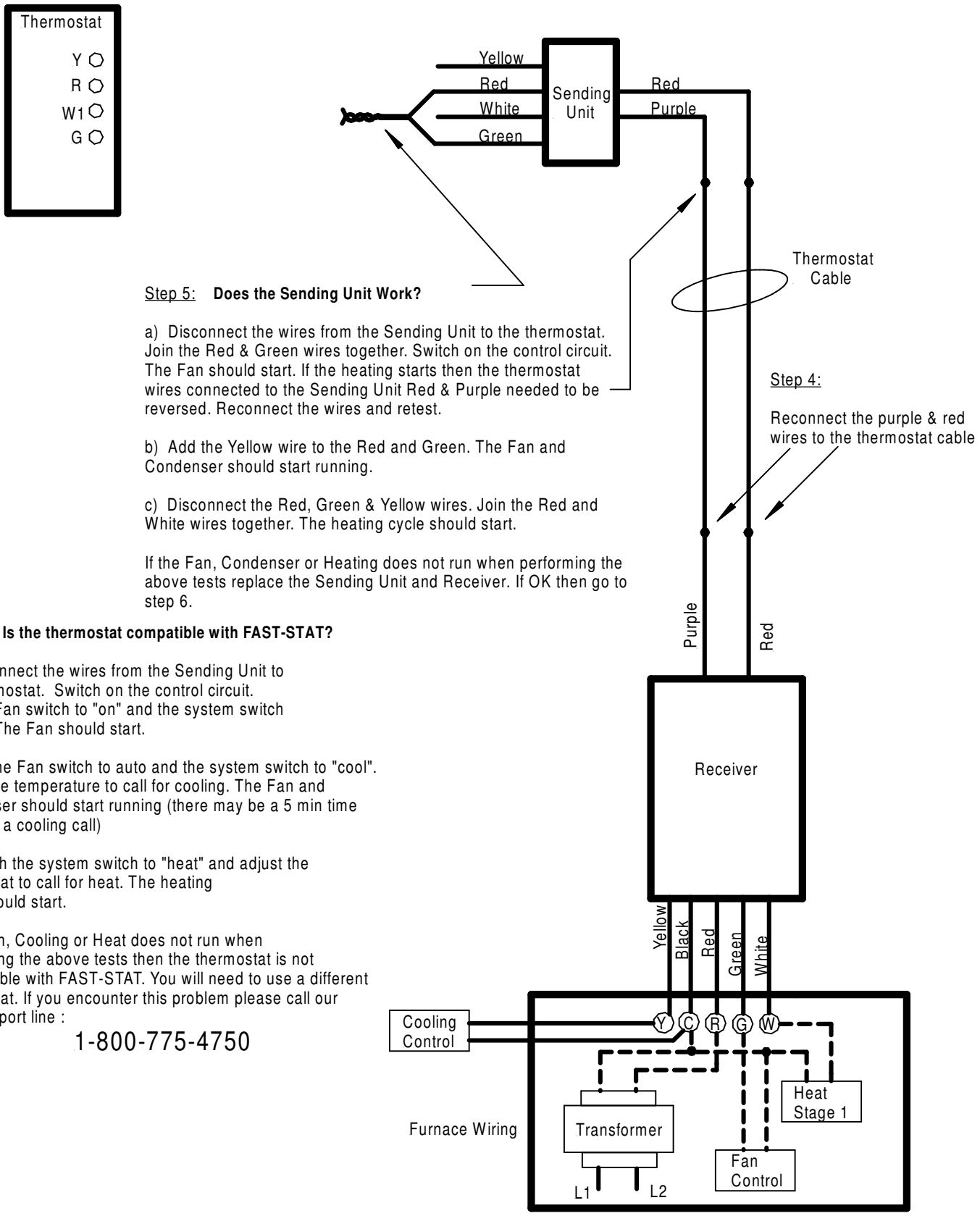
Join the red & purple wires together and switch on the control circuit. The heating, fan & A/C should start. If they do not start, replace the Receiver. If OK go to step 4 (next page).

Step 1. **Is the Receiver getting power?**

Switch on control circuit and measure voltage at R & C. There should be 20 to 28 volts ac at the Receiver's black & red wires. If OK go to step 2.

FAST-STAT Trouble Shooting Instructions

Steps 4 to 6 (of 6)



Step 5: **Does the Sending Unit Work?**

a) Disconnect the wires from the Sending Unit to the thermostat. Join the Red & Green wires together. Switch on the control circuit. The Fan should start. If the heating starts then the thermostat wires connected to the Sending Unit Red & Purple needed to be reversed. Reconnect the wires and retest.

b) Add the Yellow wire to the Red and Green. The Fan and Condenser should start running.

c) Disconnect the Red, Green & Yellow wires. Join the Red and White wires together. The heating cycle should start.

If the Fan, Condenser or Heating does not run when performing the above tests replace the Sending Unit and Receiver. If OK then go to step 6.

Step 6: **Is the thermostat compatible with FAST-STAT?**

a) Reconnect the wires from the Sending Unit to the thermostat. Switch on the control circuit. Set the Fan switch to "on" and the system switch to "off". The Fan should start.

b) Set the Fan switch to auto and the system switch to "cool". Adjust the temperature to call for cooling. The Fan and Condenser should start running (there may be a 5 min time delay on a cooling call)

c) Switch the system switch to "heat" and adjust the thermostat to call for heat. The heating cycle should start.

If the Fan, Cooling or Heat does not run when performing the above tests then the thermostat is not compatable with FAST-STAT. You will need to use a different thermostat. If you encounter this problem please call our tech support line :

1-800-775-4750