

**JA-0567-RK KIT: FENWAL DSI / WIRES / SPARK CABLE / IGNITER**  
**Replace HONEYWELL S87J DSI 24Vac Ignition Control**

**Tools Required:** Needle Nose Pliers; ¼" Nut Driver (or slot screw driver); Drill with 1/8" bit

**CAUTION: DISCONNECT POWER FROM BURNER PRIOR TO SERVICE**

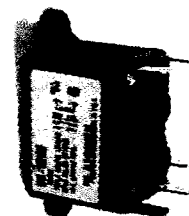
The heater must be electrically grounded and all wiring must be in accordance with the National Electrical Code ANSI / NFPA 70 or current Canadian Electrical code CSA C22.1.

Three adhesive wiring diagram labels are supplied. Select and install the corresponding label:

- A label for 2-Stage Model SET / ITT
- A label for Models with Status Indicator Lights: STS-JZ / IQ; STSp; UHE / EIH; P40 Series
- A label for Models that do not have Status Indicator Lights S100 / ITB
- **Some wires and connectors supplied may be for use with models other than the model being serviced. After confirming heater operation discard any unused pieces.**

**MODELS THAT HAVE A RELAY SWITCH TO POWER BLOWER:**

*Relay Switch is located on the component plate – see Figure 1*  
*For burner without a Relay Switch, proceed to page 3*



Relay Switch

• **Disconnect & Remove RELAY SWITCH and related wiring (refer to Figure 1):**

- ① Disconnect the blower motor BLACK wire from relay switch terminal-4
- ② Disconnect 120Vac BLACK wire from relay switch terminal-2, and from Terminal Block 'L' terminal – Discard this wire
- ③ Disconnect BLUE wire from relay switch terminal-3
- ④ Disconnect GREEN ground wire from relay switch terminal-1 and by removing ground screw from component plate – discard GREEN wire
  - a. Reinstall ground screw to attach GREEN wire from 'GND' terminal on DSI control
- ⑤ Remove 2 screws holding the relay switch to the component plate – Discard relay switch

• **Disconnect & Remove Honeywell S87J and related wiring (refer to Figure 1):**

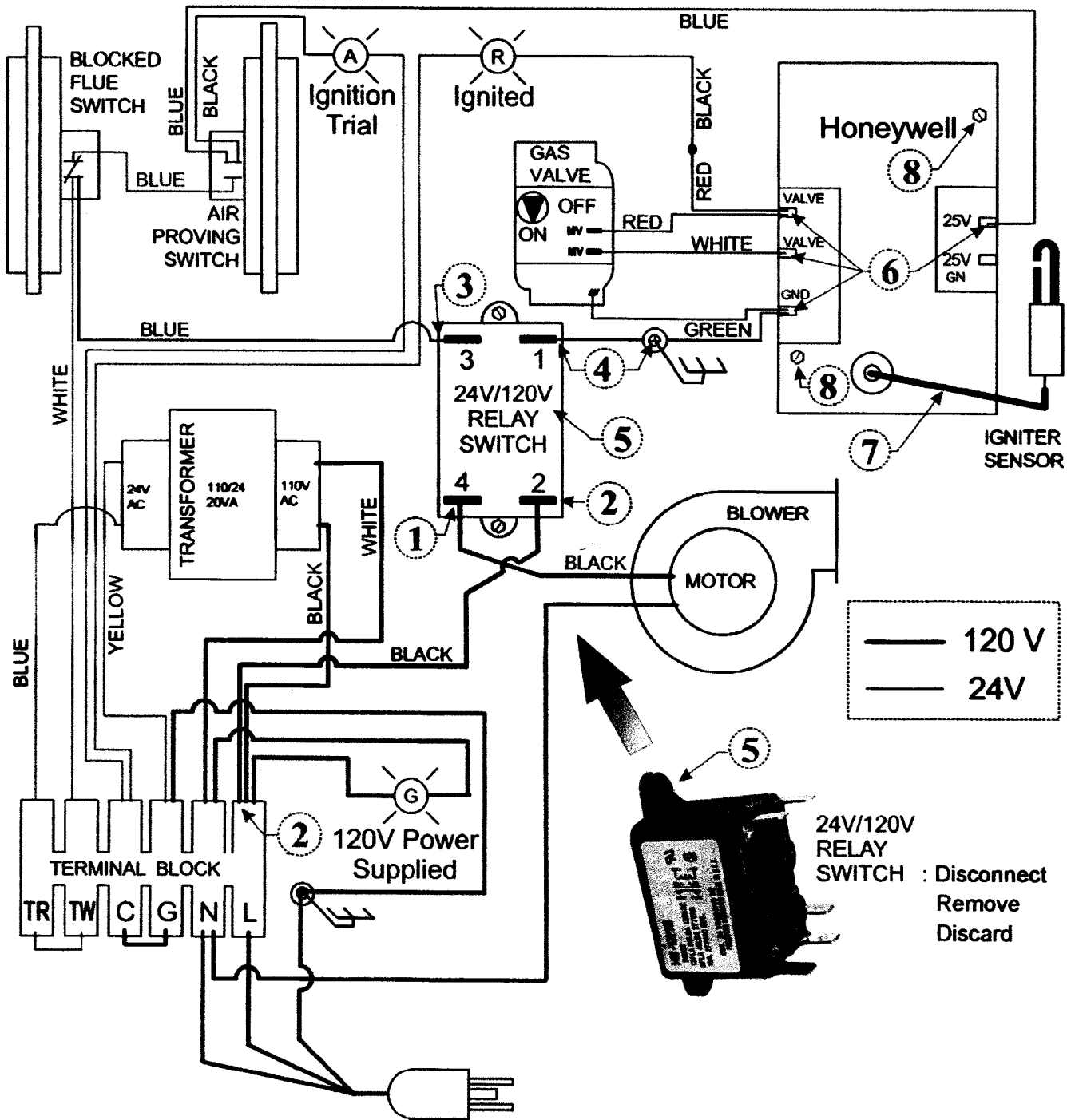
- ⑥ Disconnect wires (4 connectors) from the Honeywell S87J (leave wires in place for reconnection to Fenwal DSI control – DO NOT disconnect wires at gas valve):
  - a. Disconnect BLUE wire connector from '25V' terminal on S87J
  - b. Disconnect GREEN wire pair connector from 'GND' terminal on S87J
  - c. Disconnect WHITE wire connector from 'VALVE' terminal on S87J
  - d. Disconnect RED wire pair connector from 'VALVE' terminal on S87J
- ⑦ Disconnect Spark Cable from Honeywell S87J control and igniter
  - a. Remove Cable from grommet in burner cabinet & discard Cable
- ⑧ Remove 2 screws holding Honeywell S87J DSI control to component plate - Discard S87J

• **Proceed to instructions to Install Fenwal DSI Control ..... Page 4**

**FIGURE 1: Models with Relay Switch that controls blower operation**

**Remove Relay Switch, Honeywell S87J, and related wiring**

*Note: Burner might not have status indicator lights*



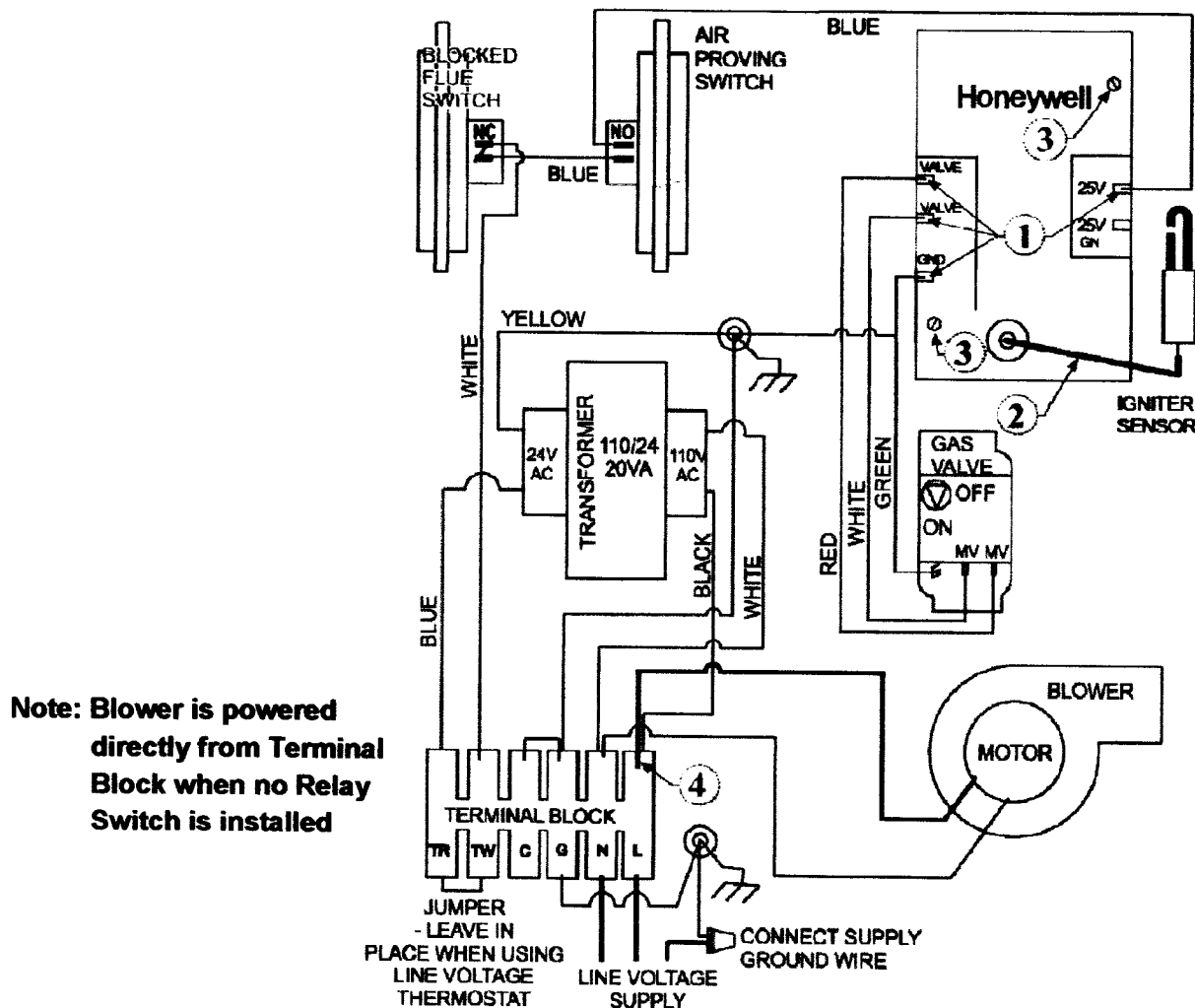
*For burner without a Relay Switch, proceed to next page.*

## MODELS THAT DO NOT HAVE A RELAY SWITCH :

### • Disconnect & Remove Existing Honeywell S87J and related wiring (refer to Figure 2):

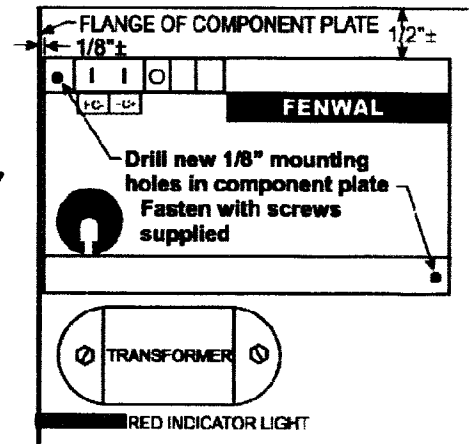
- ① Disconnect wires (4 connectors) from Honeywell S87J (leave wires in place for reconnection to Fenwal DSI control – do not disconnect wires at gas valve):
  - a. Disconnect BLUE wire connector from '25V' terminal on S87J
  - b. Disconnect GREEN wire pair connector from 'GND' terminal on S87J
  - c. Disconnect WHITE wire connector from 'VALVE' terminal on S87J
  - d. Disconnect RED wire pair connector from 'VALVE' terminal on S87J
- ② Disconnect Spark Cable from Honeywell S87J control and igniter
  - a. Remove Cable from grommet in burner cabinet & discard Cable
- ③ Remove 2 screws holding Honeywell S87J DSI control to component plate - Discard DSI control
- ④ Disconnect blower motor BLACK wire from Terminal Block 'L' terminal
  - a. Install supplied ¼" female spade connector at end of blower motor Black wire

**FIGURE 2: Models that do not have a Relay Switch to power combustion blower**



## ALL MODELS: Mount Fenwal DSI on to the component plate

- New 1/8" diameter holes will need to be drilled in the component plate to mount the Fenwal control – DO NOT align the Fenwal control with either of the previous holes used by the Honeywell control ... that location of the Fenwal control conflicts with the blower motor
- Locate the Fenwal DSI control (in similar location of the Honeywell control): approximately 1/2" from the edge of the Component Plate, and with the left end of the control within 1/8" of the outward flange on the component plate
- Mounting holes are located top left and bottom right corners of the Fenwal DSI
- Drill a 1/8" diameter hole into the component plate through each of the two mounting holes in the control
- Use two sheet metal screws provided to fasten the control to the component plate – snug screws in place - do not over tighten
- If your burner does NOT have a Terminal Block: Install the Terminal Block supplied in the Kit, and affix the terminal label below the Block. Connect wires and install jumper(s) supplied as indicated on the wiring diagram that applies to your model burner: With Status Indicator Lights, or Without Lights



## INSTALL NEW FENWAL DSI CONTROL AND RELATED WIRING

### **BURNER WITH STATUS INDICATOR LIGHTS (refer to Figure 3):**

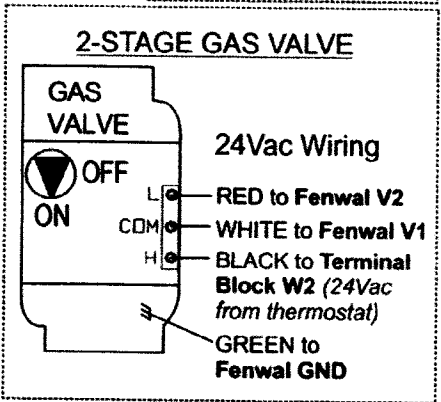
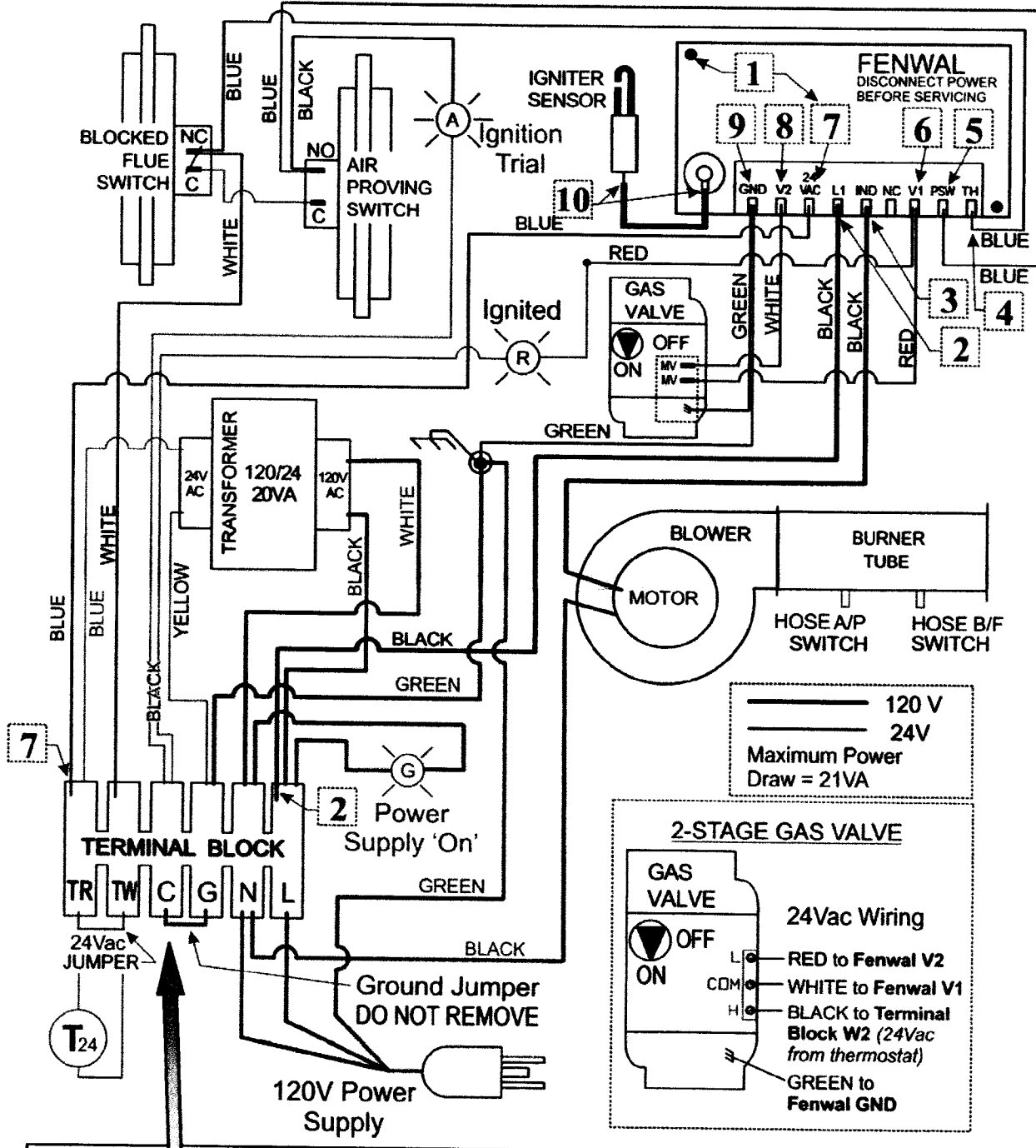
*Burner without Status Indicator Lights proceed to Page 6 for instructions.*

1. Install supplied Black wire with female spade connector one end, between Fenwal DSI tab 'L1' and Terminal Block 'L' terminal (*120Vac supply to DSI control*)
2. Connect Black wire from blower motor to the 'IND' tab on the Fenwal DSI
3. Connect Blue wire from 'NC' terminal on blocked-flue switch to 'TH' tab on the Fenwal DSI
4. Connect Blue wire from 'NO' terminal on proving-air switch to the 'PSW' tab on Fenwal DSI
5. Connect Red wire (pair with single connector: Valve & red indicator light) to 'V1' tab on Fenwal DSI
6. Install supplied Blue wire with female spade connector one end from Fenwal DSI tab '24VAC' to the Terminal Block 'TR' terminal (with Blue wire from transformer)
7. Connect White wire from gas valve to the 'V2' tab of the Fenwal DSI
8. Connect Green ground wire from gas valve (pair with single connector) to Fenwal DSI 'GND' tab (wire also grounds to component plate)
9. Install new Spark Cable through grommet in cabinet, with igniter boot located on the exterior of the cabinet. Connect to igniter and slide boot in place. Connect to spark terminal of Fenwal DSI.
10. Check that all wiring is properly connected. In particular ensure that 120Vac is not connected to any 24Vac terminals. Restore power, and test fire burner.
11. Select the appropriate wiring diagram label for the heater model. Remove the backing from the adhesive label, and install inside the burner housing to cover the previous wiring diagram

**FIGURE 3: Install New Fenwal DSI Control and related wiring**

**Burner WITH Status Indicator Lights**

*For 2-STAGE BURNER SEE INSERT BELOW FOR WIRING OF 2-STAGE GAS VALVE*



- If required Install Terminal Block supplied:
1. Burner WITH Indicator Lights: Install Jumper C to G
  2. Line Voltage Thermostat control: Install Jumper TR to TW
    - a. Do not install TR-TW Jumper if 24Vac Thermostat

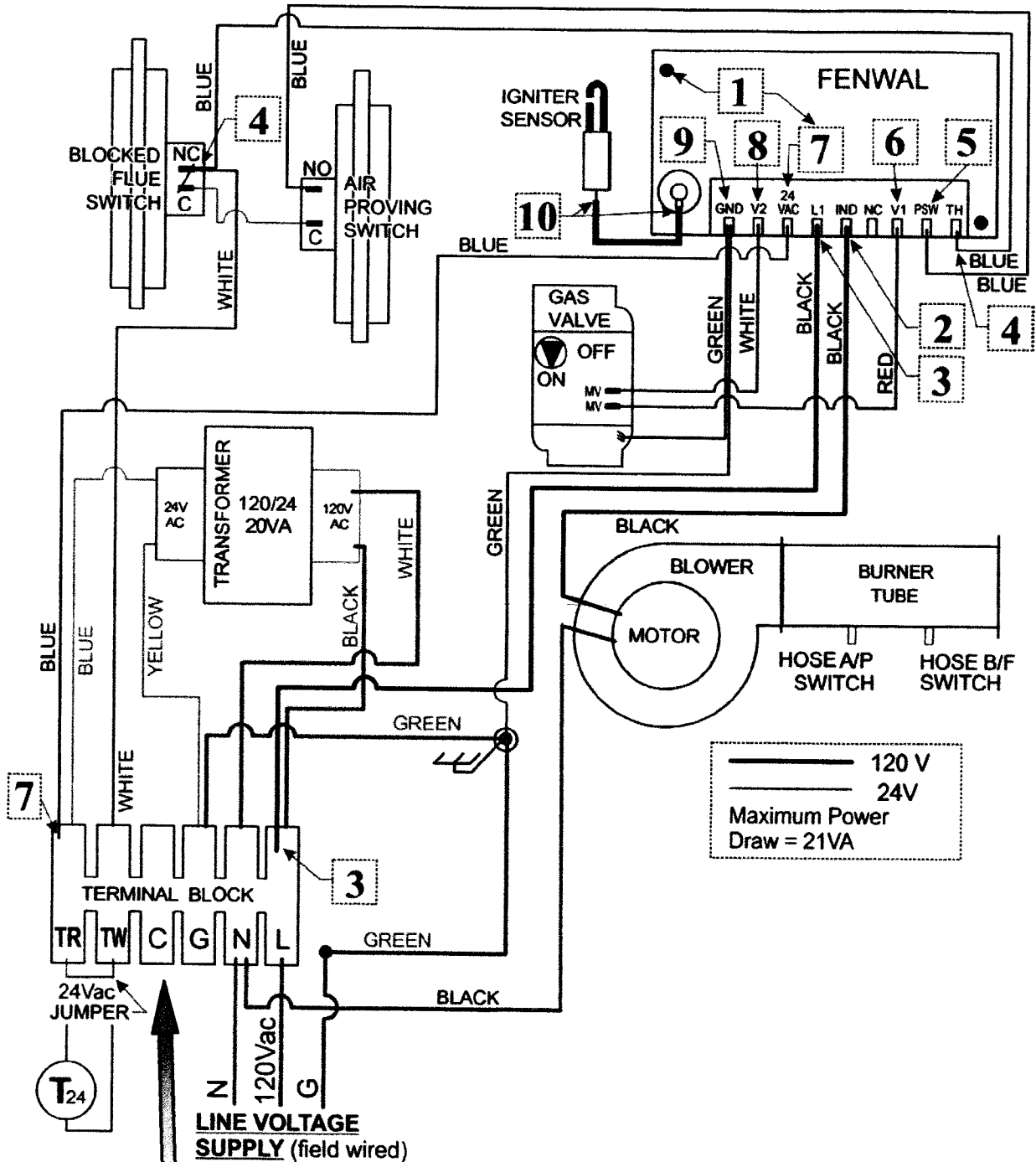
• **MODELS WITHOUT STATUS INDICATOR LIGHTS (refer to Figure 4 next page):**

*Models with Status Indicator Lights return to Page 4 for instructions.*

1. Mount Fenwal DSI on to the component plate:
  - a. Refer to instructions on Page 3, section 1 for installation of the Fenwal DSI control on to the component plate, then return here for further instruction
2. Connect blower motor Black wire (from 4 above) to Fenwal DSI tab 'IND'
3. Install supplied Black wire with female spade connector one end, between Fenwal DSI tab 'L1' and Terminal Block 'L' terminal (120Vac supply to DSI control)
4. Install supplied Blue wire (spade connector both ends):
  - a. Connect to piggy-back spade (White wire) at blocked-flue 'NC' terminal
  - b. Connect other end of Blue wire to Fenwal DSI tab 'TH'
5. Connect Blue wire from air-proving switch 'NO' terminal to Fenwal DSI tab 'PSW'
6. Connect Red wire from gas valve to 'V1' tab on the Fenwal DSI
7. Install supplied Blue wire with female spade connector one end from Fenwal DSI tab '24VAC' to the Terminal Block 'TR' terminal (Blue wire from transformer also connects to the 'TR' terminal)
8. Connect White wire from gas valve to the 'V2' tab of the Fenwal DSI
9. Connect Green ground wire from gas valve (pair with single connector) to Fenwal DSI 'GND' tab (wire also grounds to component plate)
10. Install new Spark Cable through grommet in cabinet, with igniter boot located on the exterior of the cabinet. Connect to igniter and slide boot in place. Connect to spark terminal of Fenwal DSI
11. Check that all wiring is properly connected. In particular ensure that 120Vac is not connected to any 24Vac terminals. Restore power, and test fire burner.
12. Select the appropriate wiring diagram label for the heater model. Remove the backing from the adhesive label, and install inside the burner housing to cover the previous wiring diagram

**FIGURE 4: Install New Fenwal DSI Control and related wiring**

**Burner WITHOUT Status Indicator Lights**



If required Install Terminal Block supplied

1. Burner WITHOUT Indicator Lights: NO Jumper C to G
2. Line Voltage Thermostat control: Install Jumper TR to TW
  - a. Do not install TR-TW Jumper if 24Vac Thermostat