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# GAS UNITS KITS AND ACCESSORIES

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## INTEGRATED CONTROL REPLACEMENT KIT

### INSTALLATION INSTRUCTIONS FOR INTEGRATED CONTROL REPLACEMENT KITS (12X08) & (12X09) USED WITH G60(V) AND G61(V) UNITS EQUIPPED WITH WHITE RODGERS INTEGRATED CONTROL AND IGNITER

#### **! WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer (or equivalent), service agency or the gas supplier.

#### Shipping & Packing List

##### Package 1 of 1 contains:

- 1- Integrated control with mounting plate
- 1- Igniter
- 1- Igniter bracket
- 1- Igniter/control replacement sticker
- 1- Diagnostic code sticker
- 1- 5 pin harness

#### Application

Use replacement integrated control kit 12X08 with G60DFV, G60UHV and G61MPV units and kit 12X09 with G60DF, G60UH and G61MP units.

#### **! IMPORTANT**

When installing kits 12X08 and 12X09 the original igniter and integrated control must be replaced. **DO NOT** replace one without the other.

#### **! IMPORTANT**

Disconnect power before servicing unit.  
Shut off main gas supplies to appliance until installation is complete.

#### ELECTROSTATIC DISCHARGE (ESD) Precautions and Procedures

#### **! CAUTION**



Electrostatic discharge can affect electronic components. Take precautions to neutralize electrostatic charge by touching your hand and tools to metal prior to handling the control.

#### Installation

#### **! IMPORTANT**

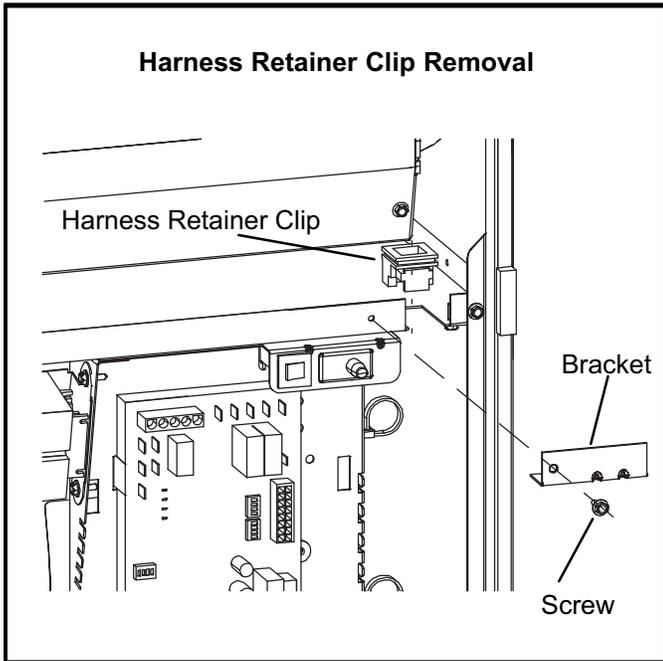
Protect the control from direct contact with water. If the control has been in direct contact with water, replace the control.

**WHEN SERVICING CONTROLS**, label all wires prior to disconnecting. Wiring errors can cause improper and dangerous operation.

**VERIFY** proper operation after servicing.

1. - Turn off electrical and gas supplies to the furnace.
2. - Remove the access panel and the control box cover.
3. - Remove harness retainer clip from furnace. See figure 1.
4. - Disconnect and **label all** wires on existing control. Remove the 5, 12 and 16 (V models) pin harness from the control.
5. - Remove the White Rodgers control and standoffs.
6. - Determine if new control with mounting plate and standoffs will fit into current application. If so snap standoffs into place. If not drill new 3/16" holes into current control box for proper fit up.
7. - Reconnect the line voltage hot wires (black) to replacement control.
  - Door switch - E12
  - Indoor blower motor - E10
  - Transformer - E11





**FIGURE 1**

8. - Reconnect the line voltage neutral wires (white) to replacement control.  
Line to power  
Indoor blower motor  
Transformer
9. - Reconnect the flame sense wire to the replacement control.
10. - Insert the blue wire from integrated control terminal (R2) into hole #3 of the furnace 12 pin harness male plug. Make sure terminal is seated fully into male plug.
11. - Install 12 pin harness plug into the new integrated control.
12. - Disconnect the 5 pin harness wires (black and white) to the hot surface igniter and combustion air inducer. Discard the 5 pin harness.
13. - Remove 4 screws to burner box cover.
14. - Remove burner box cover.
15. - Remove screw securing burner box baffle and remove baffle inside of burner box.
16. - Cut wire tie securing igniter wires to grommet.
17. - Unplug wire connector from igniter and remove wire from grommet.

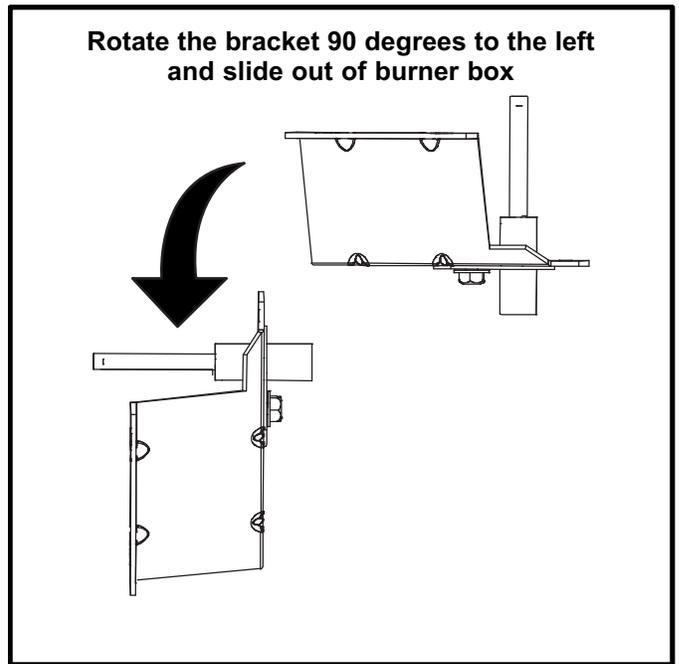
18. - Remove 2 screws securing igniter bracket to assembly. Make note of screws holes used. See figure 3.
19. - Rotate igniter bracket 90° to the left and slide out bracket. See figure 2.
20. - Remove the screw securing igniter to bracket.
21. - Reverse steps to install replacement igniter.

**⚠ IMPORTANT**

**Ensure proper earth grounding of appliance.**

**Ensure proper connection of line neutral and line hot wires.**

22. - Affix replacement igniter sticker next to the sight glass on the burner box.
23. - Affix replacement diagnostic code sticker over the current diagnostic code sticker.
24. - Connect provided 5 pin plug to control.
25. - Rout wires through opening in blower deck.
26. - Connect 2 wire end to igniter.
27. - Connect 3 wire end to combustion air inducer.
28. - Restore electrical and gas supplies to the furnace. Refer to the furnace installation instructions or then instruction start-up.



**FIGURE 2**

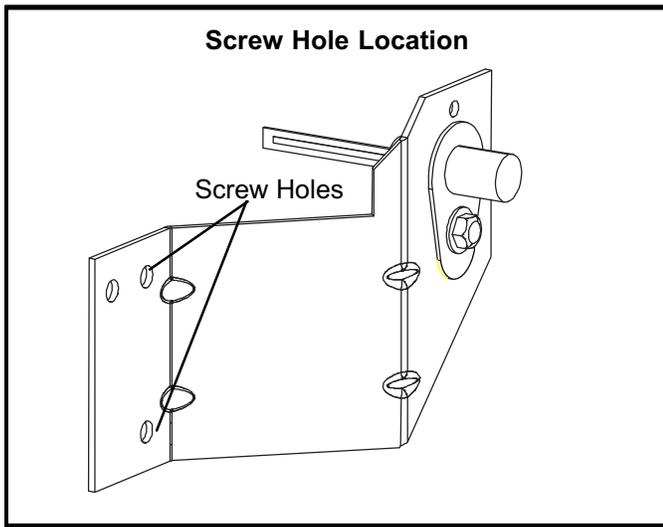


FIGURE 3

**Integrated Control For Kit 12X08**

This control manages ignition timing, heating mode fan off delays and indoor blower speeds based on selections made using the control dip switches and jumpers. The control includes an internal watchguard feature which automatically resets the ignition control when it has been locked out. After one hour of continuous thermostat demand for heat, the watchguard will break and remake thermostat demand to the furnace and automatically reset the control to relight the furnace.

**Heating Operation DIP Switch Settings -- Figure 4**

**Switch 1 -- Thermostat Selection --** This unit may be used with either a single-stage or two-stage thermostat. The thermostat selection is made using a DIP switch which must be properly positioned for the particular application. The DIP switch is factory-positioned for use with a two-stage thermostat. If a single-stage thermostat is to be used, the DIP switch must be repositioned.

Select "OFF" for two-stage heating operation controlled by a two-stage heating thermostat (factory setting);

- b - Select "ON" for two-stage heating operation controlled by a single-stage heating thermostat. This setting provides a timed delay before second-stage heat is initiated.

**Switch 2 -- Second Stage Delay (Used with Single-Stage Thermostat Only) --** This switch is used to determine the second stage on delay when a single-stage thermostat is being used. The switch is factory-set in the OFF position, which provides a 10-minute delay before second-stage heat is initiated. If the switch is toggled to the ON position, it will provide a 15-minute delay before second-stage heat is initiated. This switch is only activated when the thermostat selector jumper is positioned for SINGLE-stage thermostat use.

**Switches 3 and 4 -- Blower-Off Delay --** The blower-on delay of 45 seconds is not adjustable. The blower-off delay (time that the blower operates after the heating demand has been satisfied) can be adjusted by moving switches 3 and 4 on the integrated control board. The unit is shipped from the factory with a blower-off delay of 90 seconds. The blower off delay affects comfort and is adjustable to satisfy individual applications. Adjust the blower off delay to achieve a supply air temperature between 90° and 110°F at the exact moment that the blower is de-energized. Longer off delay settings provide lower supply air temperatures; shorter settings provide higher supply air temperatures. Table 1 provides the blower off timings that will result from different switch settings.

**TABLE 1  
Blower Off Delay Switch Settings**

Blower Off Delay (Seconds)	Switch 3	Switch 4
60	Off	On
90	Off	Off
120	On	Off
180	On	On

**Indoor Blower Operation DIP Switch Settings -- Figure 4**

**Switches 5 and 6 -- Cooling Mode Blower Speed --** Switches 5 and 6 are used to select cooling blower motor speed. The unit is shipped from the factory with the DIP switches positioned for high speed (4) indoor blower motor operation during the cooling mode. The table below provides the cooling mode blower speeds that will result from different switch settings.

**TABLE 2  
Cooling Mode Blower Speeds**

Speed	Switch 5	Switch 6
1 - Low	On	On
2 - Medium Low	Off	On
3 - Medium High	On	Off
4 - High (Factory)	Off	Off

**Switches 7 and 8 -- Blower Speed Adjustment --** Switches 7 and 8 are used to select blower speed adjustment settings. The unit is shipped from the factory with the DIP switches positioned for NORMAL (no) adjustment. The DIP switches may be positioned to adjust the blower speed by +10% or -10% to better suit the application. The table below provides blower speed adjustments that will result from different switch settings.

**TABLE 3  
Blower Speed Adjustment**

Adjustment	Switch 7	Switch 8
+10% (approx.)	On	Off
NORMAL (Factory)	Off	Off
-10% (approx.)	Off	On

**Switches 9 and 10 -- Cooling Mode Blower Speed Ramping** -- Switches 9 and 10 are used to select cooling mode blower speed ramping options. Blower speed ramping may be used to enhance dehumidification performance. The switches are factory set at option A which has the greatest effect on blower motor performance. Table 4 provides the cooling mode blower speed ramping options that will result from different switch settings. The cooling mode blower speed ramping options are detailed on the next page.

*NOTE - The off portion of the selected ramp profile only applies during heat pump operation in dual fuel applications.*

**TABLE 4  
Cooling Mode Blower Speed Ramping**

Ramping Option	Switch 9	Switch 10
A (Factory)	Off	Off
B	On	Off
C	Off	On
D	On	On

**Switches 11 and 12 -- Heating Mode Blower Speed --** Switches 11 and 12 are used to select heating mode blower motor speed. The unit is shipped from the factory with the dip switches positioned for medium low (2) speed indoor blower motor operation during the heating mode. The table below provides the heating mode blower speeds that will result from different switch settings.

**TABLE 5  
Heating Mode Blower Speeds**

Speed	Switch 11	Switch 12
1 - Low	On	On
2 - Medium Low (Factory)	Off	On
3 - Medium High	On	Off
4 - High	Off	Off

**On-Board Jumper W914 -- Figure 4**

On-board jumper W914, which connects terminals DS and R on the integrated control board, must be cut when the furnace is installed with either the Harmony III™ zone control board or a thermostat which features humidity control. If the jumper is left intact the PMW signal from the Harmony III control will be blocked and also lead to control damage.

**On-Board Jumper W951 -- Figure 4**

On-board jumper W951, which connects terminals R and O on the integrated control board, must be cut when the furnace is installed in applications which include a heat pump unit and a thermostat which features dual fuel use. If the jumper is left intact, terminal “O” will remain energized eliminating the HEAT MODE in the heat pump.

**On-Board Jumper W915 -- Figure 4**

On-board jumper W915, which connects terminals Y1 and Y2 on the integrated control board, must be cut if two-stage cooling will be used. If the jumper is not cut the outdoor unit will operate in second-stage cooling only.

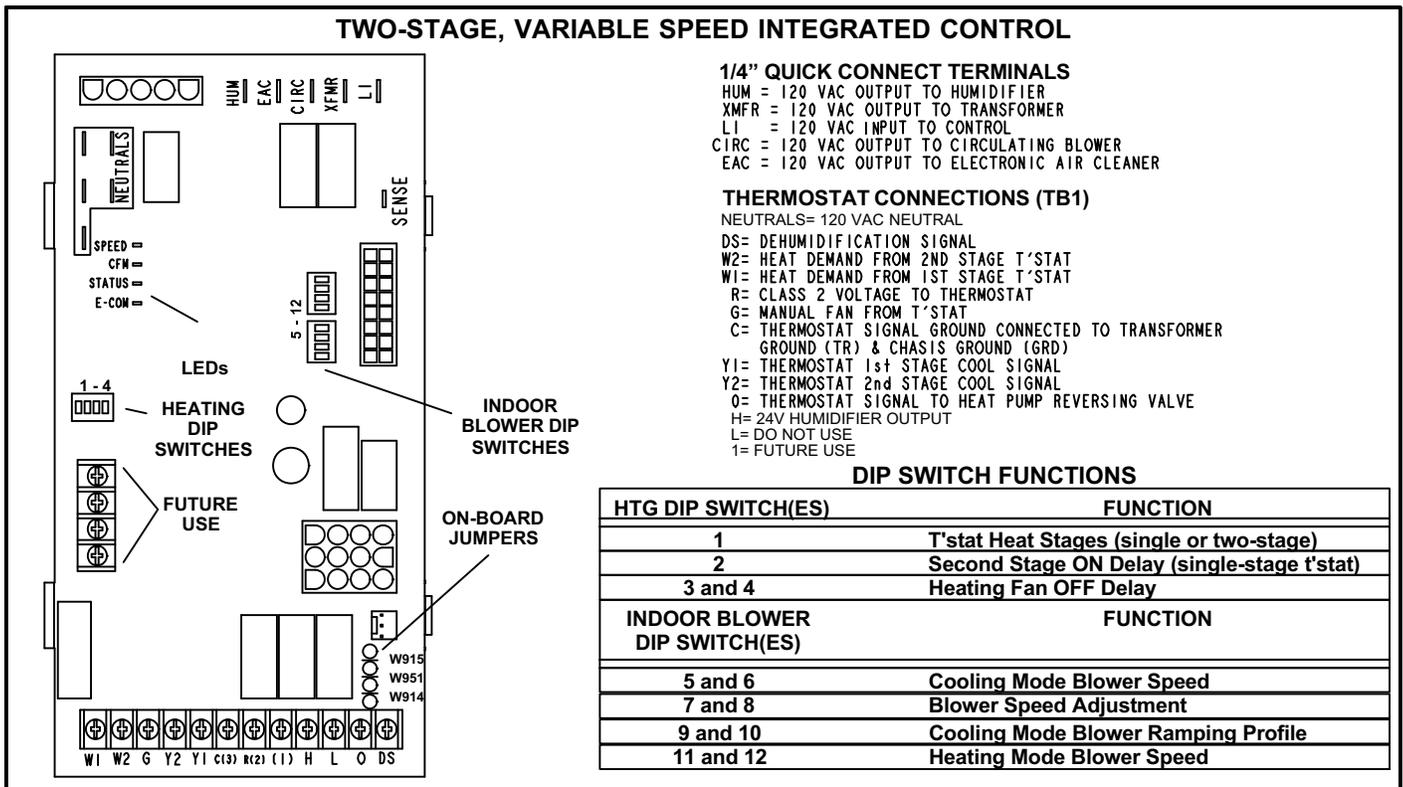
**LEDs (SPEED, CFM, STATUS, E-COM) -- Figure 4**

The green SPEED LED indicates circulating blower speed in response to the DS signal. The LED is lit during normal blower operation and is off during a dehumidification demand. In Harmony III applications, the brightness of the LED indicates the requested blower speed.

The green CFM LED indicates the blower air flow. Count the number of blinks between the two-second pauses to determine the CFM. Each blink represents approximately 100 CFM.

The STATUS LED flashes diagnostic codes.

The green E-COM LED indicates that the control is receiving and processing commands and inputs. The LED may flash rapidly or may display a single flash, depending upon the activity.



**FIGURE 4**

**Integrated Control For Kit 12X09**

This control manages ignition timing and fan off delays based on selections made using the control DIP switches and jumpers. The control includes an internal watchguard feature which automatically resets the ignition control when it has been locked out. After one hour of continuous thermostat demand for heat, the watchguard will break and remake thermostat demand to the furnace and automatically reset the control to relight the furnace.

**DIP Switch Settings**

**Switch 1 -- Thermostat Selection** -- This unit may be used with either a single-stage or two-stage thermostat. The thermostat selection is made using a DIP switch which must be properly positioned for the particular application. The DIP switch is factory-positioned for use with a two-stage thermostat. If a single-stage thermostat is to be used, the DIP switch must be repositioned.

Select "OFF" for two-stage heating operation controlled by a two-stage heating thermostat (factory setting);

- b - Select "ON" for two-stage heating operation controlled by a single-stage heating thermostat. This setting provides a timed delay before second-stage heat is initiated.

**Switch 2 -- Second Stage Delay (Used with Single-Stage Thermostat Only)** -- This switch is used to determine the second stage on delay when a single-stage thermostat is being used. The switch is factory-set in the OFF position, which provides a 10-minute delay before second-

stage heat is initiated. If the switch is toggled to the ON position, it will provide a 15-minute delay before second-stage heat is initiated. This switch is only activated when the thermostat selector jumper is positioned for SINGLE-stage thermostat use.

**Switches 3 and 4 -- Heating Blower-Off Delay** -- The heating blower-on delay of 45 seconds is not adjustable. The heating blower-off delay (time that the blower operates after the heating demand has been satisfied) can be adjusted by moving switches 3 and 4 on the integrated control. The unit is shipped from the factory with a heating blower-off delay of 90 seconds. The heating blower off delay affects comfort and is adjustable to satisfy individual applications. Adjust the blower off delay to achieve a supply air temperature between 90° and 110°F at the exact moment that the blower is de-energized. Longer off delay settings provide lower supply air temperatures; shorter settings provide higher supply air temperatures. Table 6 provides the blower off timings that will result from different switch settings.

**TABLE 6 Heating Blower-Off Delay Switch Settings**

Blower Off Delay (Seconds)	Switch 3	Switch 4
60	Off	On
90	Off	Off
120	On	Off
180	On	On

**Switch 5 -- Cooling Blower-Off Delay --** The cooling blower-off delay (time that the blower operates after the cooling demand has been satisfied) can be adjusted by moving switch 5 on the integrated control. The switch is factory-set in the OFF position, which provides a cooling blower-off delay of 45 seconds. If the switch is toggled to the ON position, it will provide a 2-second cooling blower-off delay

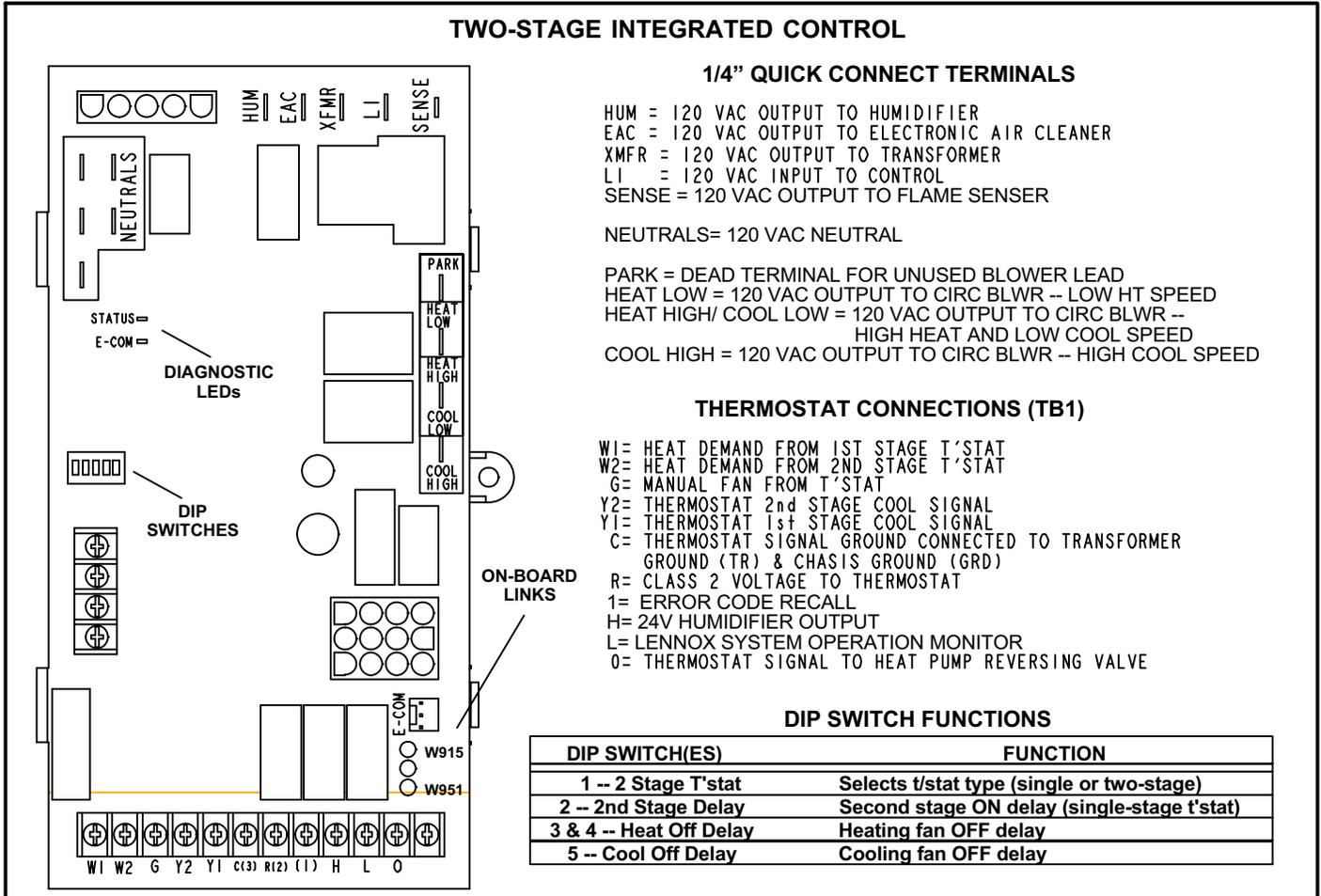
**On-Board Link W951**

On-board link W951 is a clippable connection between ter-

minals R and O on the integrated control. W951 must be cut when the furnace is installed in applications which include a heat pump unit and a thermostat which features dual fuel use. If the link is left intact, terminal "O" will remain energized eliminating the HEAT MODE in the heat pump.

**On-Board Link W915**

On-board link W915 is a clippable connection between terminals Y1 and Y2 on the integrated control. W915 must be cut if two-stage cooling will be used. If the link is not cut the outdoor unit will operate in second-stage cooling only.



**FIGURE 5**

## Start-Up

### Preliminary and Seasonal Checks

- 1 - Inspect electrical wiring, both field and factory installed for loose connections. Tighten as required.
- 2 - Check voltage at disconnect switch. Voltage must be within range listed on the nameplate. If not, consult the power company and have voltage condition corrected before starting unit.

## **⚠ WARNING**

**Shock and burn hazard.**

**Units are equipped with a hot surface ignition system. Do not attempt to light manually.**

- 1 - **STOP!** Read the safety information at the beginning of this section.
- 2 - Set the thermostat to the lowest setting.
- 3 - Turn off all electrical power to the unit.
- 4 - This furnace is equipped with an ignition device which automatically lights the burners. Do **not** try to light the burners by hand.
- 5 - Remove the upper access panel.
- 6 - *White Rodgers 36E Gas Valve* - Switch gas valve lever to **OFF**. See figure 6.  
*Honeywell VR8205 Gas Valve* - Turn knob on gas valve clockwise  to **OFF**. Do not force. See figure 7.
- 7 - Wait five minutes to clear out any gas. If you then smell gas, **STOP!** Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you do not smell gas go to next step.

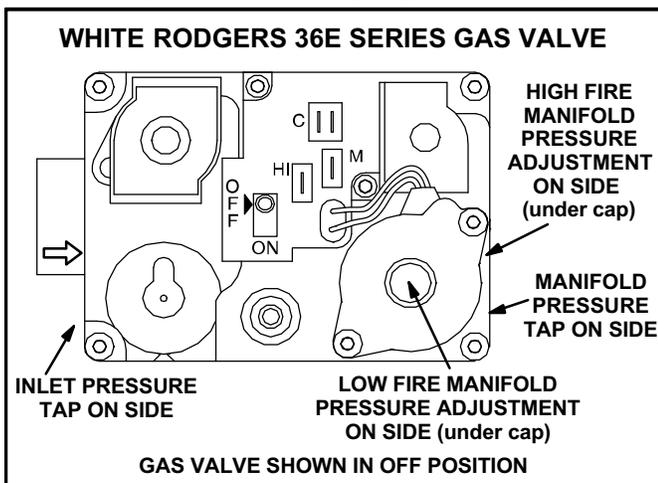


FIGURE 6

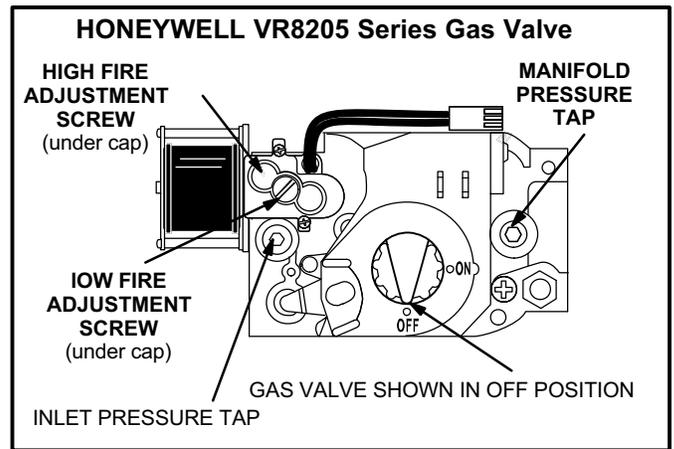


FIGURE 7

- 8 - *White Rodgers 36E Gas Valve* - Switch gas valve lever to **ON**. See figure 6.  
*Honeywell VR8205 Gas Valve* - Turn knob on gas valve counterclockwise  to **ON**. Do not force. See figure 7.
- 9 - Replace the upper access panel.
- 10- Turn on all electrical power to to the unit.
- 11- Set the thermostat to desired setting.

*NOTE - When unit is initially started, steps 1 through 11 may need to be repeated to purge air from gas line.*

### Turning Off Gas To Unit

- 1 - Set thermostat to lowest setting.
- 2 - Turn off all electrical power to unit if service is to be performed.
- 3 - Remove access panel.
- 4 - Switch lever on White Rodgers gas valve to **OFF**; turn knob on Honeywell valve clockwise  to **OFF**. Do not force.
- 5 - Replace access panel.

G60UH Shown

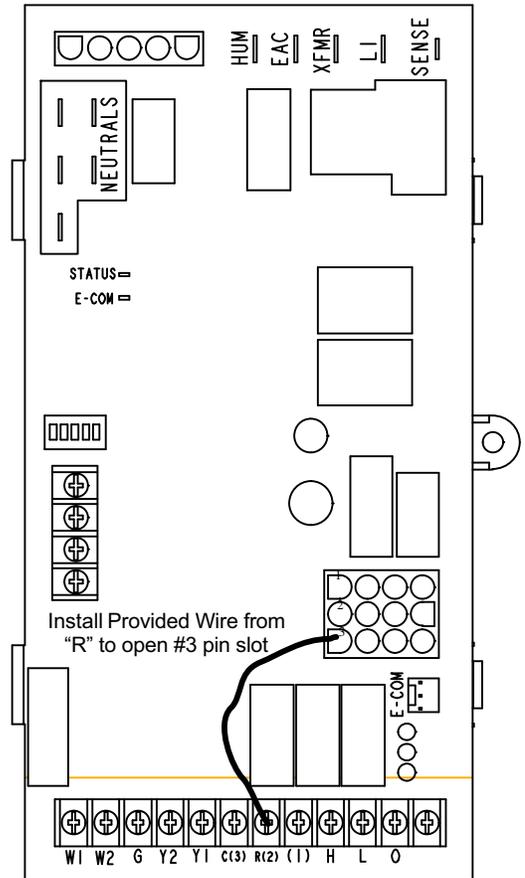
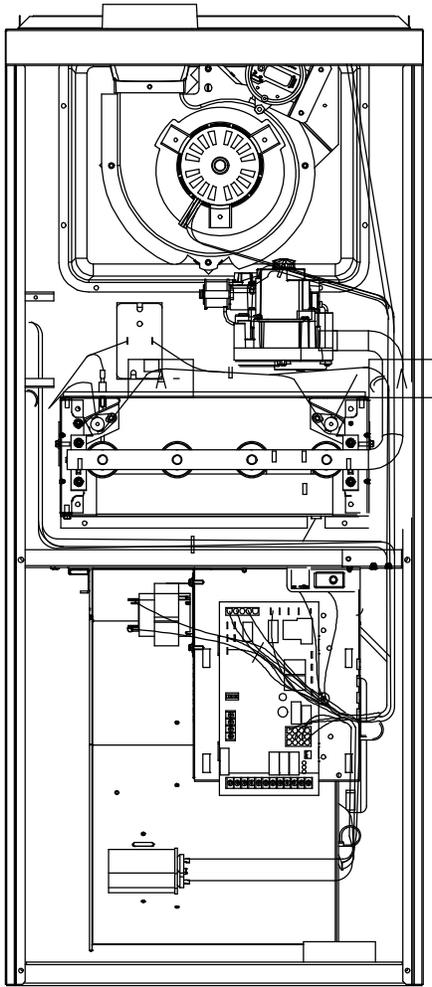


FIGURE 8