

White-Rodgers

Commercial Rooftop Controls

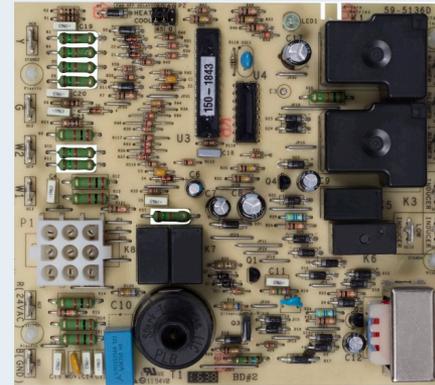
Business and Product Overview

White-Rodgers Commercial Rooftop Controls

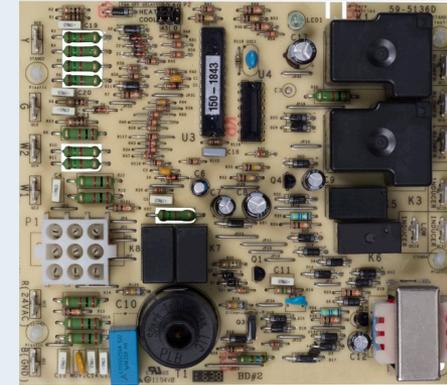
As the direct OEM supplier of electromechanical ignition modules for Trane Rooftop Units (RTUs), White-Rodgers is uniquely suited to supply the replacement market, with three unique models and one accessory.

Features

- Easy to Install
- Full Color Boxes
- Complete Cross Reference on Box
- Instruction Sheet
- Fault Code Label, Accessory Parts to Meet or Exceed OEM Offering



50N02A-820
(80s Blower Delay)
Direct Spark Ignition



50N02B-820
(45s Blower Delay)
Direct Spark Ignition



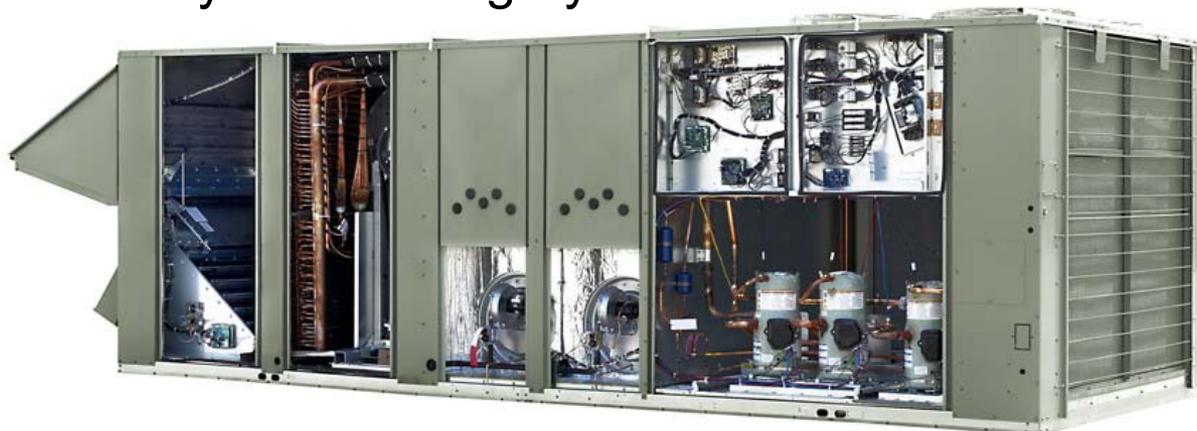
50E70-820
Hot Surface Ignition



F50N02-820
Accessory Adaptor Board and
Harnesses for Spark Controls

Trane RTU Market Data

- Trane has a large installed base of RTUs.
 - Electromechanical control boards from 1990 – Present
 - Communicating control boards from 2002 - Present
- White-Rodgers has long been the OEM Supplier for Trane ignition modules
 - Started with Fenwal, Texas Instruments
 - Moved to majority W-R, one UTEC SKU
- ICM and Honeywell do not offer these key parts, giving White-Rodgers near exclusivity in the category



Applications

50N02A-820

White-Rodgers®
Integrated Furnace Control
 50N02A-820 | Trane

COMMERCIAL **D** OEM Direct

Single or Two-Stage Applications
 Direct Spark Ignition
 80s Cool Off Delay
 For Packaged Units



Trusted by **PROs** 1-Year Limited Warranty

EMERSON



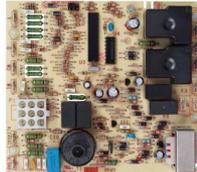
Impack™ *
 1.5-5 TON
 YCY, YCC, YCZ, DCY, DCZ
 Spark Ignition

50N02B-820

White-Rodgers®
Integrated Furnace Control
 50N02B-820 | Trane

COMMERCIAL **D** OEM Direct

Single or Two-Stage Applications
 Direct Spark Ignition
 45s Cool Off Delay
 For Packaged Units



Trusted by **PROs** 1-Year Limited Warranty

EMERSON



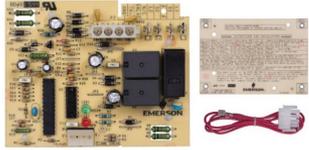
Precedent™
 3-10 TON YSC, YHC
 Spark Ignition

50E70-820

White-Rodgers®
Non-Integrated Ignition Module
 50E70-820 | Trane

COMMERCIAL **D** OEM Direct

Single Stage Applications
 120V HSI Ignition
 Adapter Board and Harness Included
 For Packaged Units



Trusted by **PROs** 1-Year Limited Warranty

EMERSON



Voyager™
 12.5-25 TON YCD
 Hot Surface Ignition

F50N02-820 Furnace Adapter Board

White-Rodgers®
Furnace Adapter Board
 F50N02-820 | Trane

COMMERCIAL **D** OEM Direct

Used with 50N02A/
 50N02B Controls

Includes:
 9 Pin to 9 Pin Harness
 9 Pin to 12 Pin Harness
 For Packaged Units



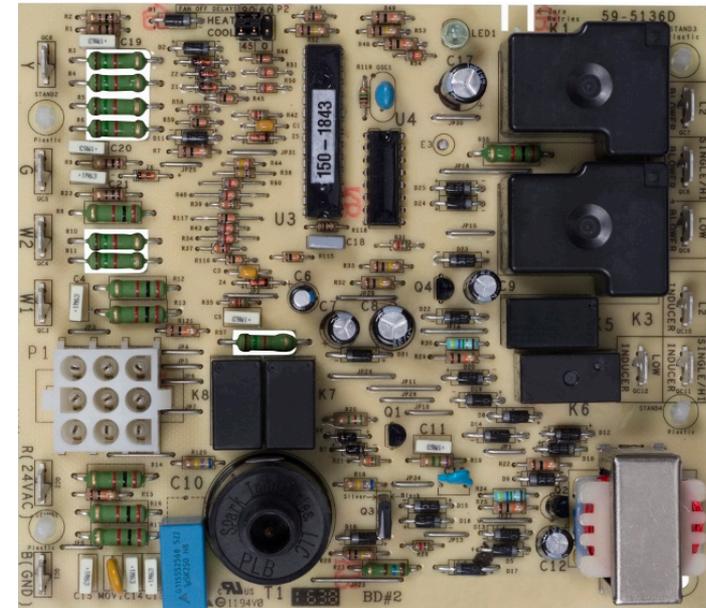
Trusted by **PROs** 1-Year Limited Warranty

EMERSON

50N02A-820 & 50N02B-820 Spark Ignition Controls

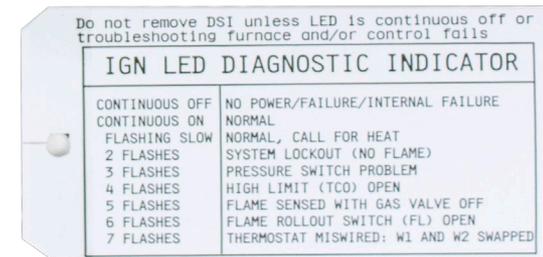
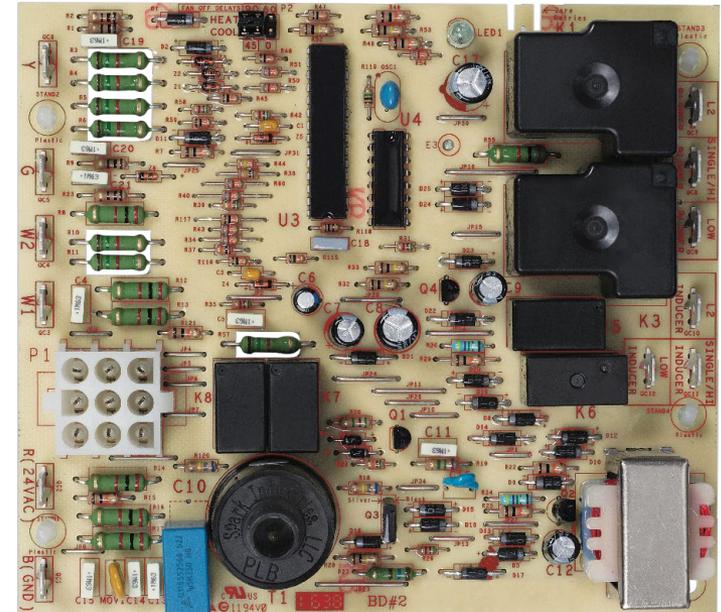
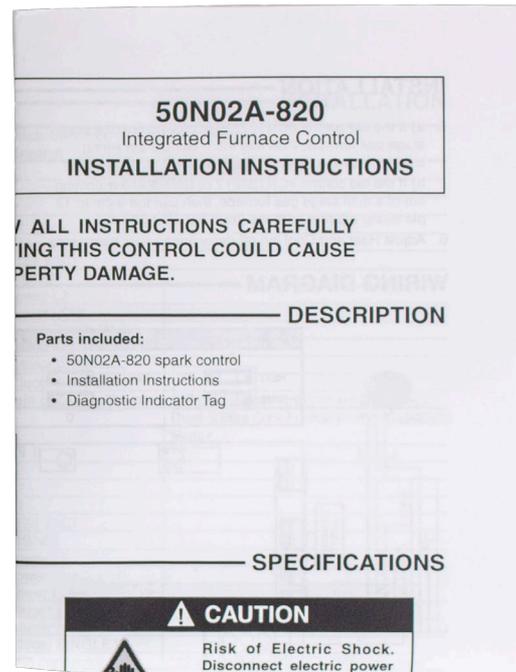
Product Features and Benefits

- Plug and play replacement of the OEM.
- Built for Impack and Precedent Product Lines
- No wire splicing or modifications necessary
- “N02A” version has black silkscreen
 - 80s Blower Delay
- “N02B” version has red silkscreen
 - 45s Blower Delay



50N02A-820 / 50N02B-820 What's in the box?

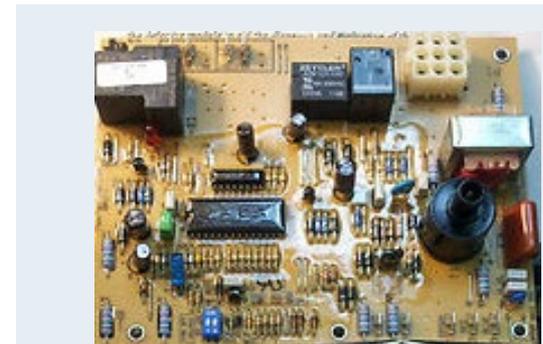
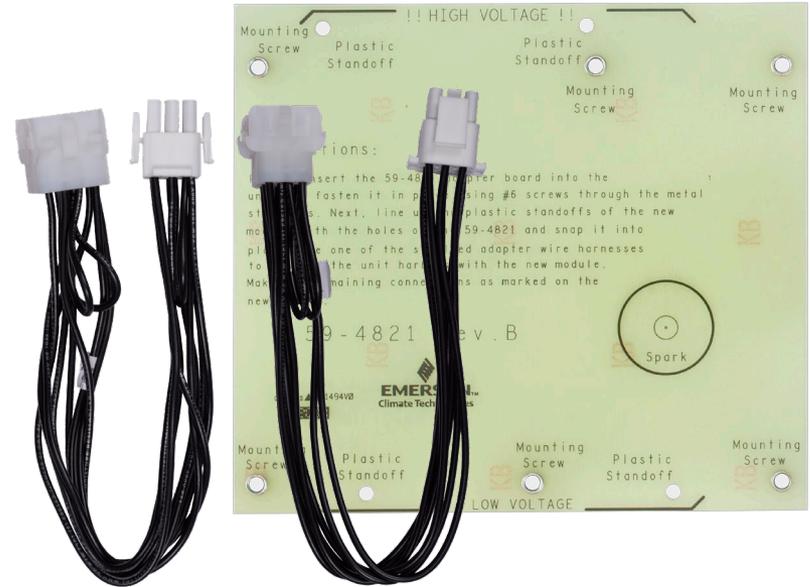
- 50N02A-820 / 50N02B-820 spark control
- Installation Instructions
- Diagnostic Indicator Tag



F50N02-820 Spark Ignition Adapter Board

Product Features and Benefits

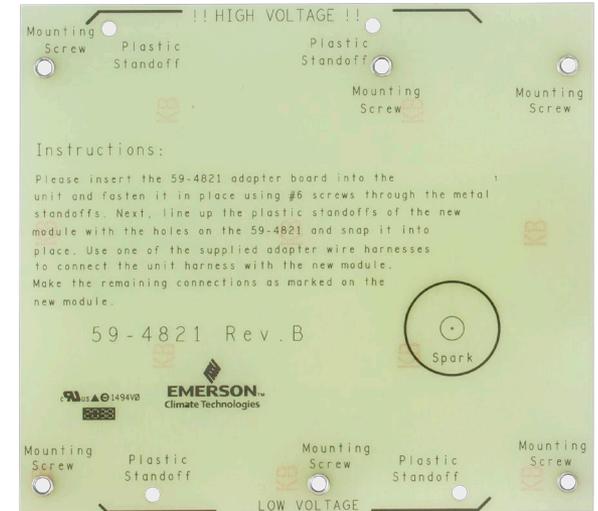
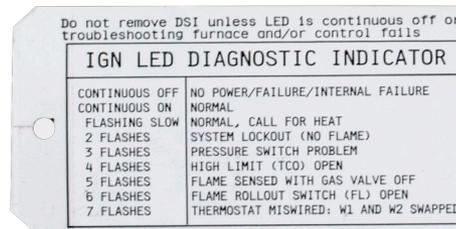
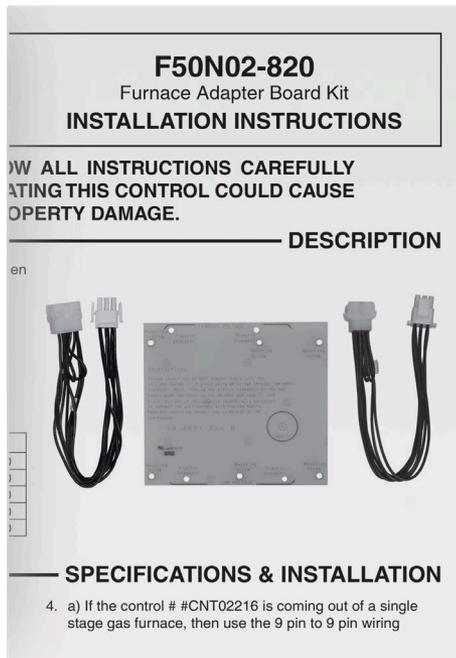
- Replaces Trane's Service KIT06839
- Initial production used a Texas Instruments Spark Module with mounting screws
- The adapter mounts to the existing screw holes and converts to plastic stand-off mounting
- Newer and already converted units will not need the adapter
- Wiring harnesses adapt old system wiring to new control board pinouts
- Broad availability to purchase



Original TI Control

F50N02-820 What's in the box?

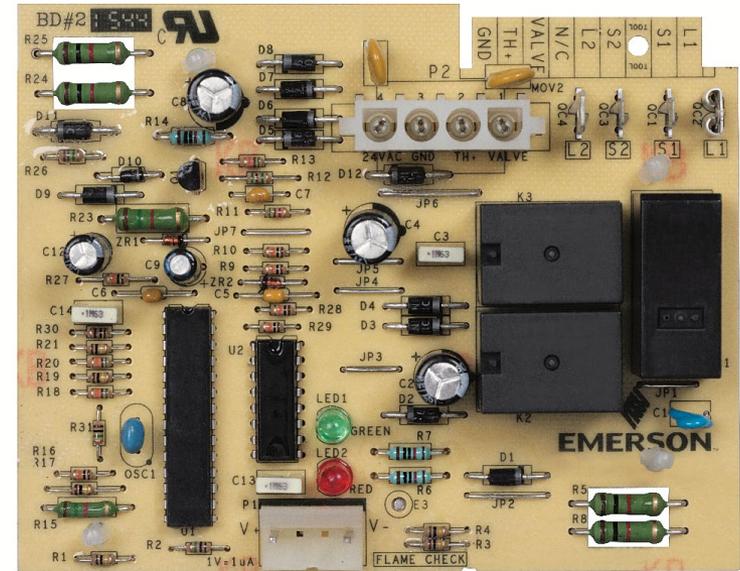
- 0059-4821 Adapter Panel
- 9 Pin to 9 Pin Wiring Adapter Harness
- 12 Pin to 9 Pin Wiring Adapter Harness
- Diagnostic Indicator Tag
- Installation Instruction Sheet



50E70-820 Hot Surface Ignition Module

Product Features and Benefits

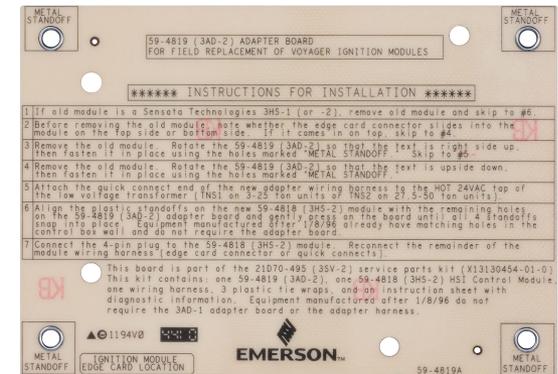
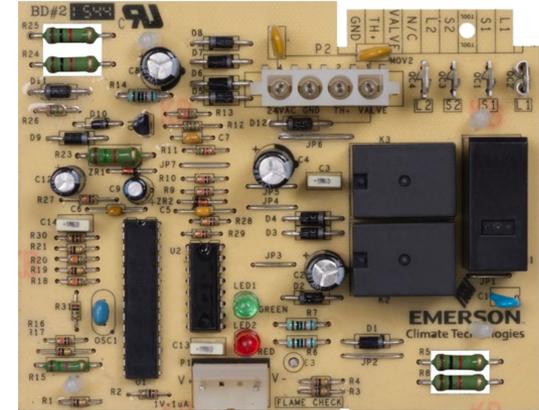
- Replaces Trane's Service KIT17852 For Voyager™
- Initial production used a Fenwal HSI Module with mounting screws before converting to a Texas Instruments standoff mount control
- The included adapter mounts to the existing screw holes and converts to plastic stand-off mounting
- Wiring adapter connects control to 24VAC transformer when needed
- Newer units will not need an adapter.
- Sequence and timing are the same as the existing board



Original Fenwal Control

50E70-820 What's in the box?

- 50E70-820 Integrated Furnace Control
- 24 VAC Wiring Harness (0155-0263)
- 59-4819 (3AD-2) Adapter Board
- 3 – Plastic tie wraps
- Installation Instructions
- Fault code label



50E70-820 TRANE

Green LED	Red LED	Status Error Condition
OFF	OFF	Powered with no call for heat
Flashing*	OFF	Call for heat - no fault detected
OFF	Flashing*	No flame signal on try for ignition or flame signal established and lost prior to a lockout condition
ON	Flashing*	Gas valve miswired or flame signal present at a call for heat
OFF	Flashing*	Internal fault - anytime

Notes:

- Flashing at 50% duty cycle.
- At the start of each entry for ignition, the Red LED will flash for 5 seconds along with a flashing Green LED.

For Complete Instruction Manual:

5001-9735

50E70-820
Integrated Furnace Control

INSTALLATION INSTRUCTIONS

**INSTRUCTIONS CAREFULLY
THIS CONTROL COULD CAUSE
DAMAGE.**

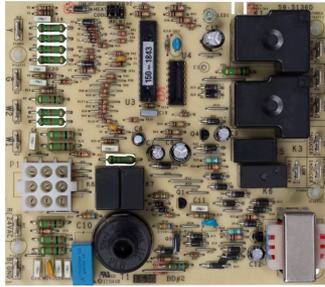
DESCRIPTION

included:

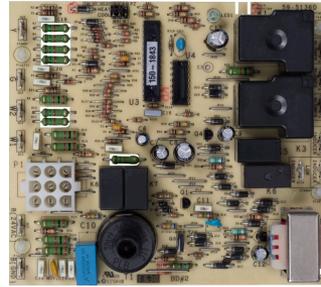
- 50E70-820 Integrated Furnace Control
- 24VAC Wiring Harness (0155-0263)
- 4819 (3AD-2) Adapter Board
- 3 Plastic tie wraps
- Installation Instructions
- Fault code label



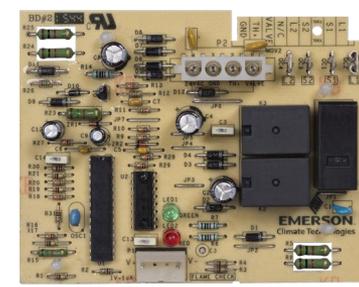
Commercial Rooftop Controls Cross Reference



50N02A-820



50N02B-820



50E70-820

Trane	White-Rodgers
CNT03456	50N02A-820
CNT03457	50N02-495-02
X13650874-01	50N02-495-0
X13650873-01	
CNT01634 w/ F50N02-820	
CNT01669 w/ F50N02-820	
CNT02216 w/ F50N02-820	
CNT02217 w/ F50N02-820	

Trane	White-Rodgers
CNT05135	50N02B-820
CNT03458	
D674713P01	
X13650875-01	
CNT02219 w/ F50N02-820	
CNT04912	

Trane	White-Rodgers
3HS-1	21D70-495-01
3HS-2 Rev A	21D70-495-02
3HS-2 Rev D	50E70-820
KIT03308	
KIT05137	
KIT08282	
KIT17852	
3SV-2	
X13130449-0	
X13130453-01	
X13130454-01	
X13130454-02	

WR Mobile App

Always up-to-date and easy to use:

- Mobile App
- White-Rodgers Website



Your resource for:

- Product information and spec sheets
- Complete Cross Reference
- OEM compatibility
- Installation information and videos
- Wiring diagrams

Download:

- Go to your app store
- Type in **WR Mobile**
- Install the app



OR

- Open your camera
- Hold it over the QR code
- Tap “Open” on the pop-down
- Install the app



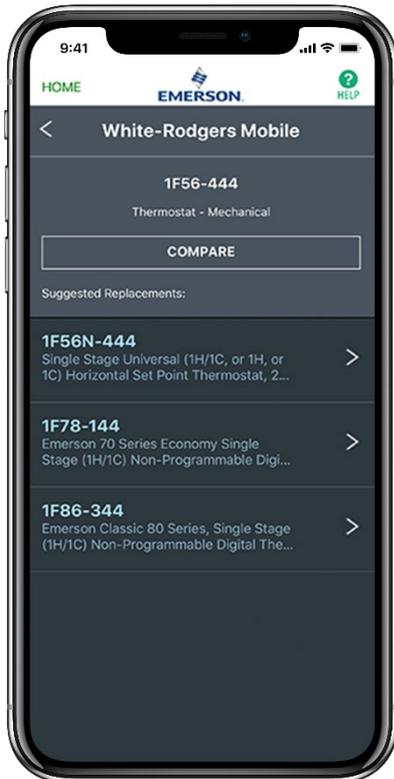
WR Mobile App

Easy to use!

Search by OEM, Competitive, or White-Rodgers Model Number



Product Number

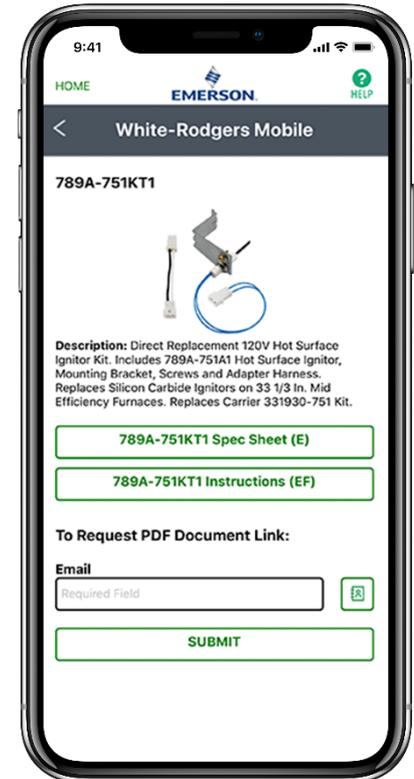


Scrollable Product List



Commercial Rooftop Controls

WR Replacement



White-Rodgers Cross Reference

Go to: www.whiterodgers.com

- Hover over Tools & Resources
- Click on: White-Rodgers Cross Reference/Product Information
- Enter the Model Number or click on: Search Replacement Heating Controls by Major OEM Brand

The screenshot shows the Emerson website header with navigation links: Emerson.com, About Us, Investors, Careers, Contact Us, News & Events, Sign In, and United States (English). Below the header is the Emerson logo and the text 'CLIMATE TECHNOLOGIES'. The main navigation menu includes Products, Industries, Training & Support, Tools & Resources (highlighted), and Expertise. A dropdown menu for 'Tools & Resources' is open, listing various resources. A green arrow points to the link 'White-Rodgers Cross Reference/Product Information' in the dropdown menu. The background of the website features a cityscape at night with the text 'Transforming How People and Work' and a paragraph about Emerson's expertise in HVACR and infrastructure solutions.

Emerson.com About Us Investors Careers Contact Us News & Events Sign In United States (English)

CLIMATE TECHNOLOGIES

EMERSON

Products Industries Training & Support **Tools & Resources** Expertise

Search  

TOOLS & RESOURCES

- Air Conditioning Webinars
- Application Engineering Knowledge Center
- Copeland Online Product Information
- E360
- Ebooks
- HVAC On Air Podcasts
- HVACR Calculators
- Mobile Apps
- The Helix
- Where To Buy
- [White-Rodgers Cross Reference/Product Information](#)
- Product Selection Software

Transforming How People and Work

Drawing on our expertise and global perspective, we combine technology to develop HVACR and infrastructure solutions for our customers.

Why Contractors Trust White-Rodgers

Industry Leading Products

- Used by more OEM's
- Offering the widest range of Universal Replacement Controls

Ease of Installation

- Simple, easy to understand instructions

Product Reliability

- Quality Control assures reliable products

Affordable

- Competitive pricing

Supported by Knowledgeable Representatives

- Contractor direct phone support



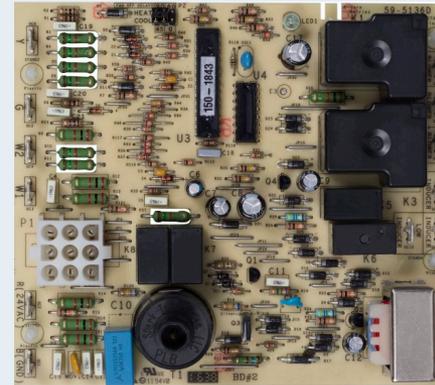
Technical

White-Rodgers Commercial Rooftop Controls

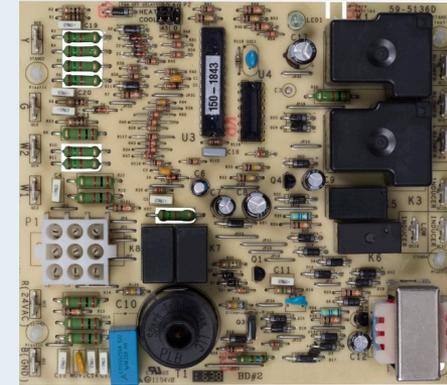
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Features

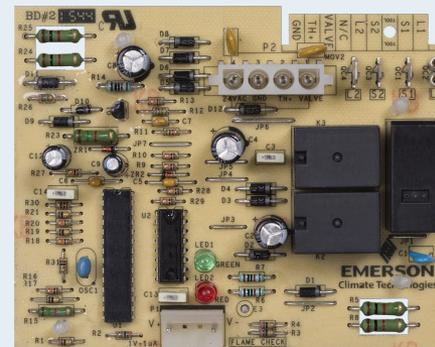
- Easy to Install
- Full Color Boxes
- Complete Cross Reference on Box
- Instruction Sheet
- Fault Code Label, Accessory Parts to Meet or Exceed OEM Offering



50N02A-820
(80s Blower Delay)
Direct Spark Ignition



50N02B-820
(45s Blower Delay)
Direct Spark Ignition



50E70-820
Hot Surface Ignition

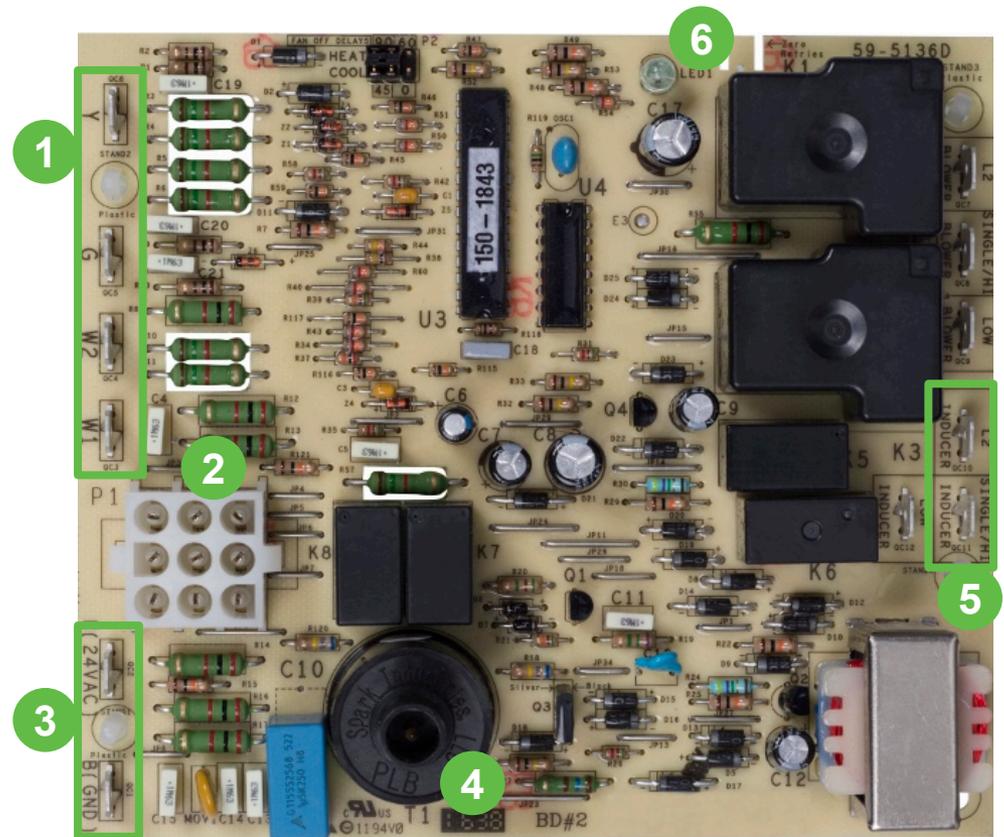


F50N02-820
Accessory Adaptor Board and
Harnesses for Spark Controls

50N02A-820 & 50N02B-820 Spark Ignition Modules

Board Components

1. Thermostat inputs
2. Safeties & gas components
3. 24VAC input
4. Spark Output
5. Hi/Low inducer outputs
6. LED



TECH TIP: Remember 50N02**B**-820 has a 45s Cool Off Delay while a 50N02**A**-820 is 80s

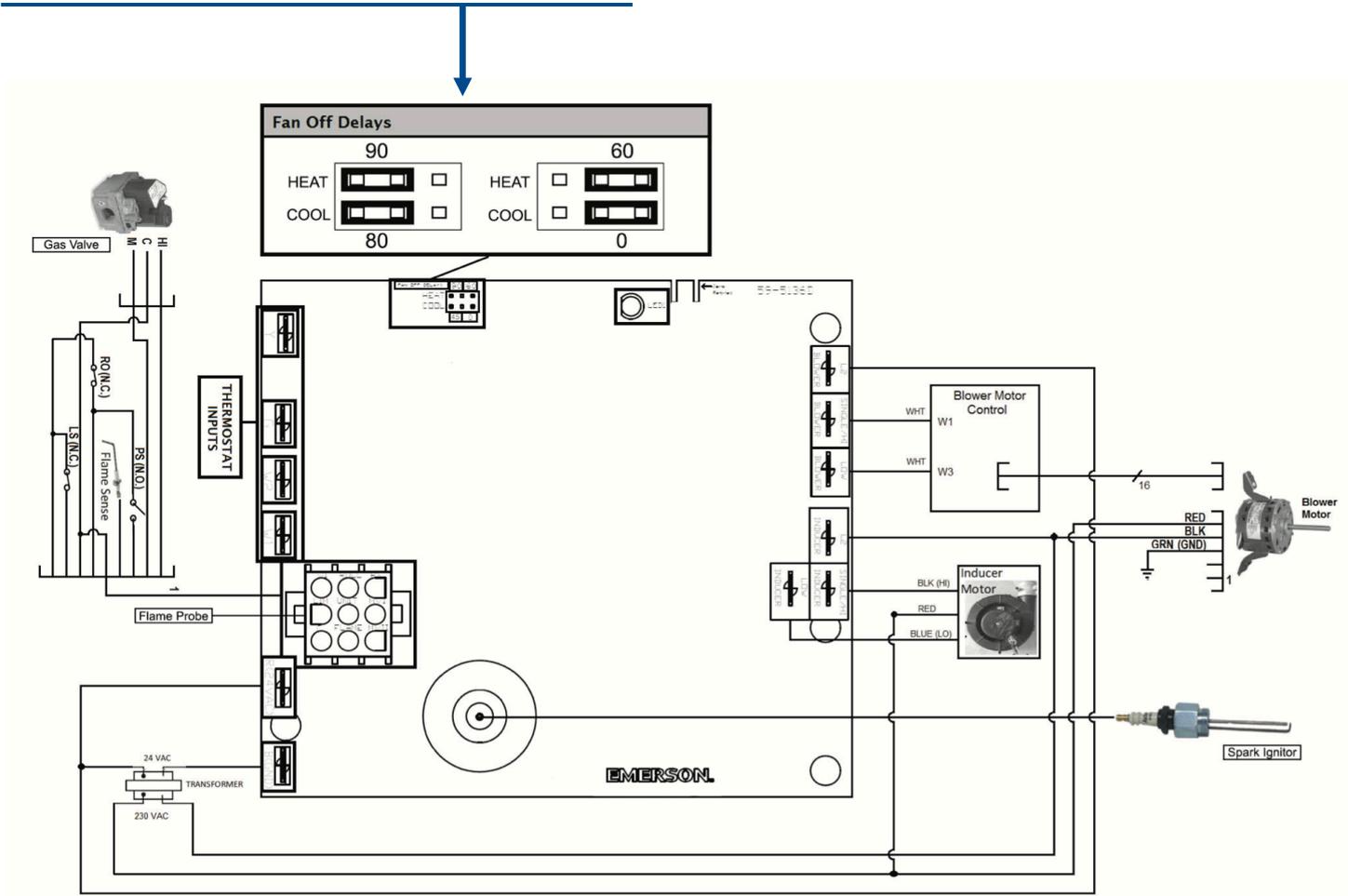
50N02A-820 & 50N02B-820 LED Diagnostic Codes

The green LED will indicate a status code as shown in the table below:

Green LED Flash	Code Status / Error Condition
Steady OFF	No Power / Failure / Internal Failure
Steady ON	Normal, no call for heat
Slow Flash Rate	Normal, call for heat
2 Flashes	System Lockout: Failed to detect or sustain flame
3 Flashes	Pressure switch problem detected
4 Flashes	High Limit switch protection device open
5 Flashes	Flame sensed and gas valve not energized or flame sensed and no "W" signal
6 Flashes	Flame Rollout Switch open
7 Flashes	Thermostat mis wired; W1 and W2 swapped

50N02A-820 & 50N02B-820 Adjustable Fan Delay

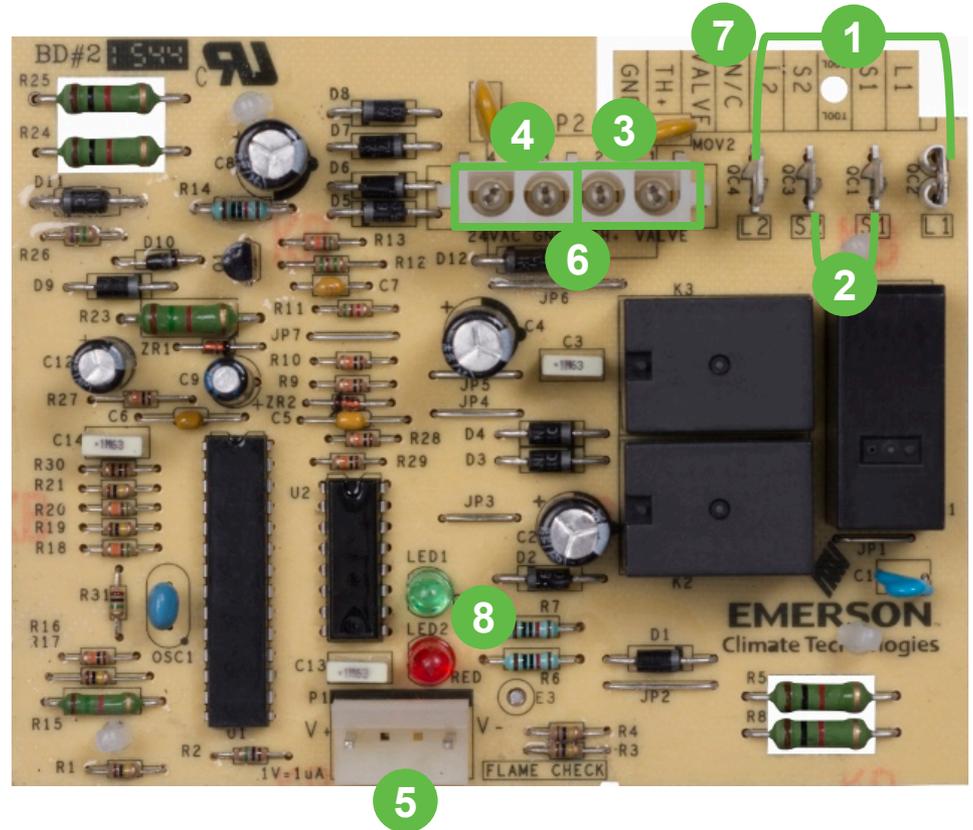
- Adjust Heat and Cool Fan Off Delay jumpers as necessary.



50E70-820 Hot Surface Ignition Module

Board Components

1. High voltage inputs
2. HSI output
3. Gas valve output
4. 24VAC input
5. Flame sense test pins
6. 4-pin plug
7. Edge card connector
8. LED



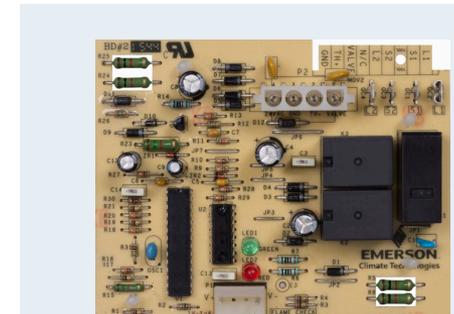
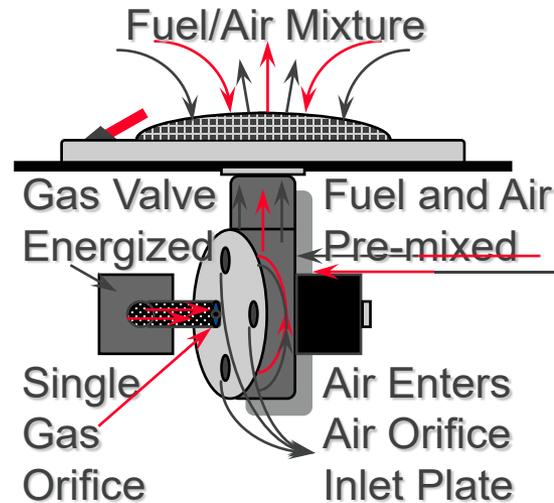
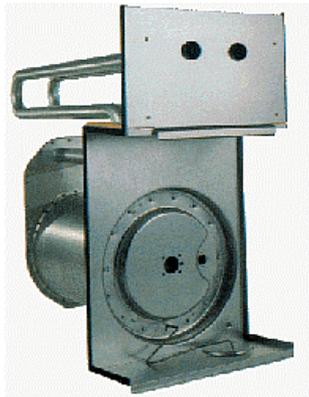
 **TECH TIP:** An “edge card connector” allows the module to slide into the control board.

50E70-820 Hot Surface Ignition Module Voyager™ Product Line

1. Trane Voyager RTU
2. Burner Assembly
3. Ignition Module

Heating Details

- Premix “Power” Burner, Not Forced or Induced Draft
- Negative Pressure Gas Valve
- Drum & Tube Heat Exchanger
- 120VAC Hot Surface Ignitor



50E70-820

50E70-820 LED Diagnostic Codes

The green LED will indicate a status code as shown in the table below:

Green LED	Red LED	Code Status / Error Condition
OFF	OFF	Powered with no call for heat
Flashing*	OFF	Call for heat – no fault detected
OFF	Flashing*	No flame signal on try for ignition or flame signal established and lost prior to a lockout condition
ON	Flashing*	Gas valve mis wired or flame signal present at a call for heat
OFF	Flashing*	Internal fault – anytime

NOTE:

- Flashing at 50% duty cycle.
- At the start of each retry for ignition, the Red LED will flash for 5 seconds along with a flashing Green LED.

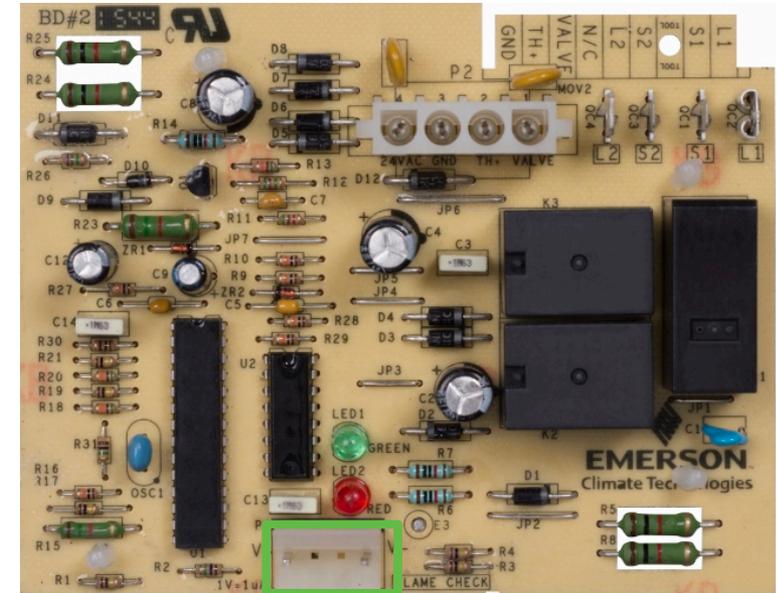
Testing Flame Current

Understanding Test Pins

- 2 pins extend from the control board to the surface of the black cover.

To Test:

- The furnace must have a call for heat and the burners producing flame.
- Set a multimeter to vDC and place a meter probe on each pin.
- Convert vDc to MicroAmps using a 1:1 ratio.
- A good flame sense reading will be between 1.0 – 5.0 μA .



Flame current test pads

Install

Disconnect Power and Gas

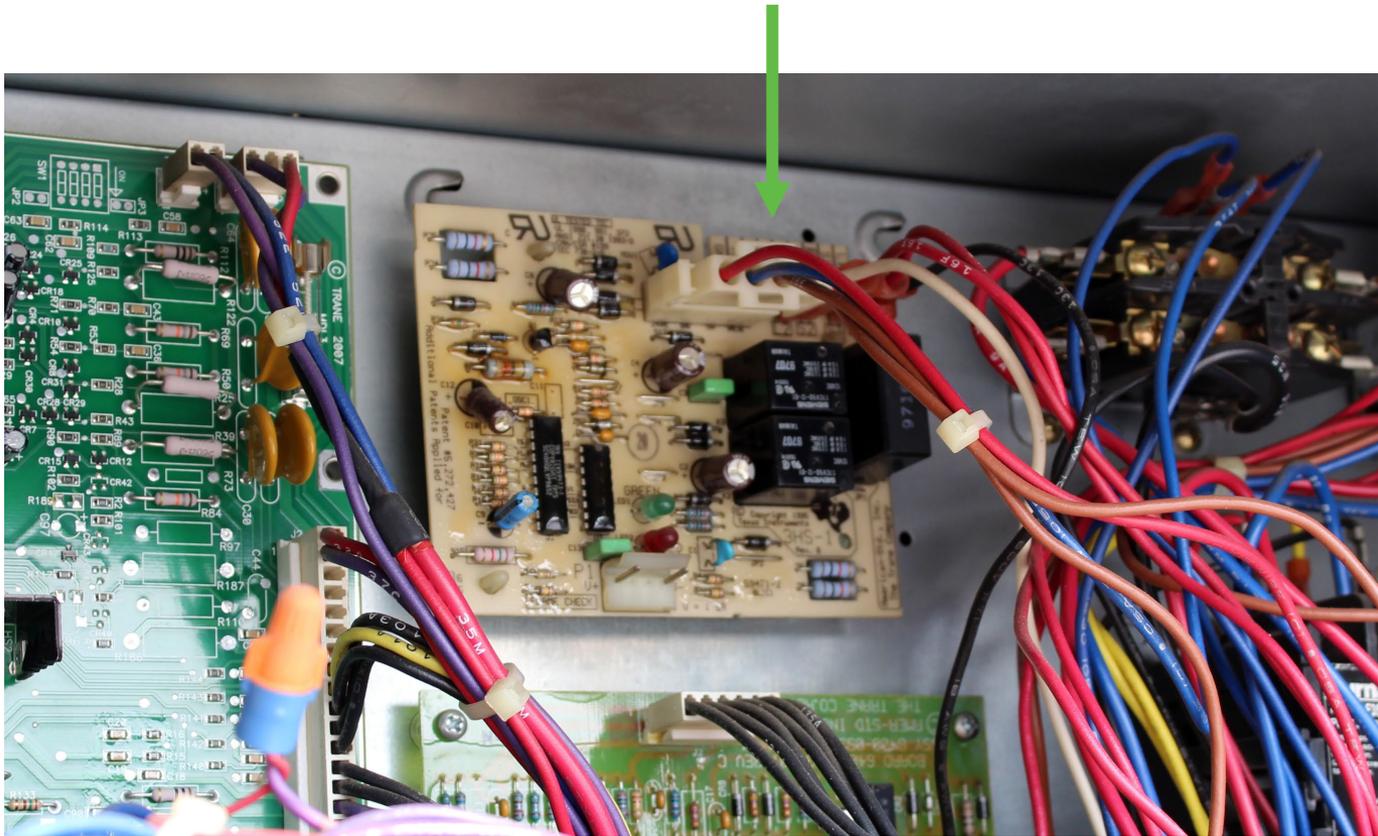
1 For this installation, **50E70–820** will be used. All wiring should be installed according to local and national electrical codes and ordinances.

NOTE: If the control being replaced is a Sensata Technologies 3HS-1 or 3HS-2, remove old control and skip to step 6.



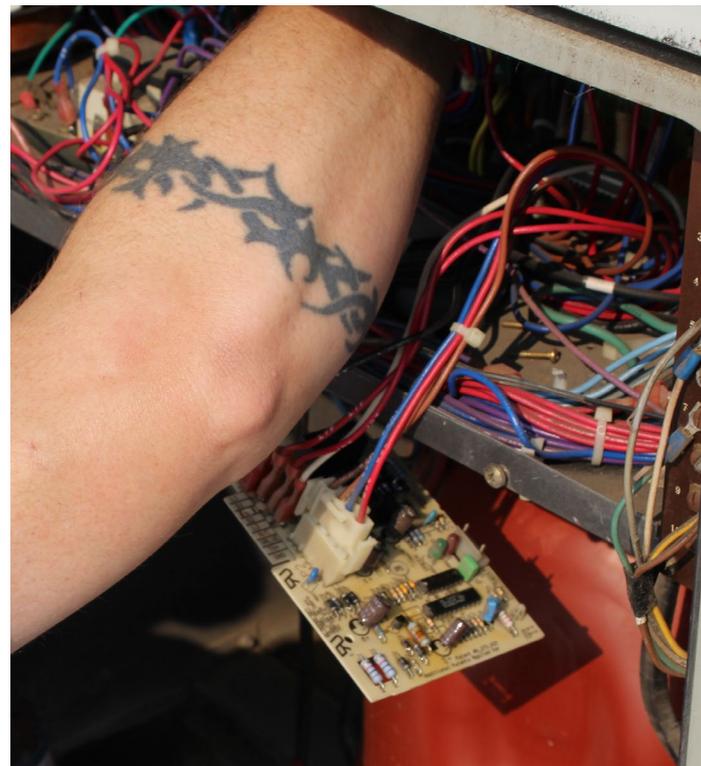
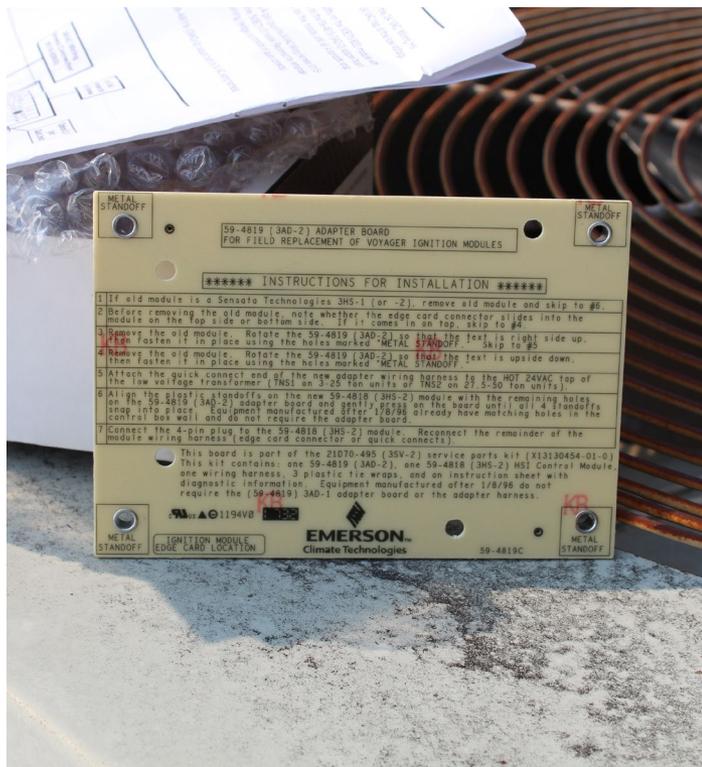
Note Location of Edge Card

- 2 Before removing the old control, note whether the edge card connector slides into the control on the top side or bottom side. If it comes in on the top, skip to step 4.



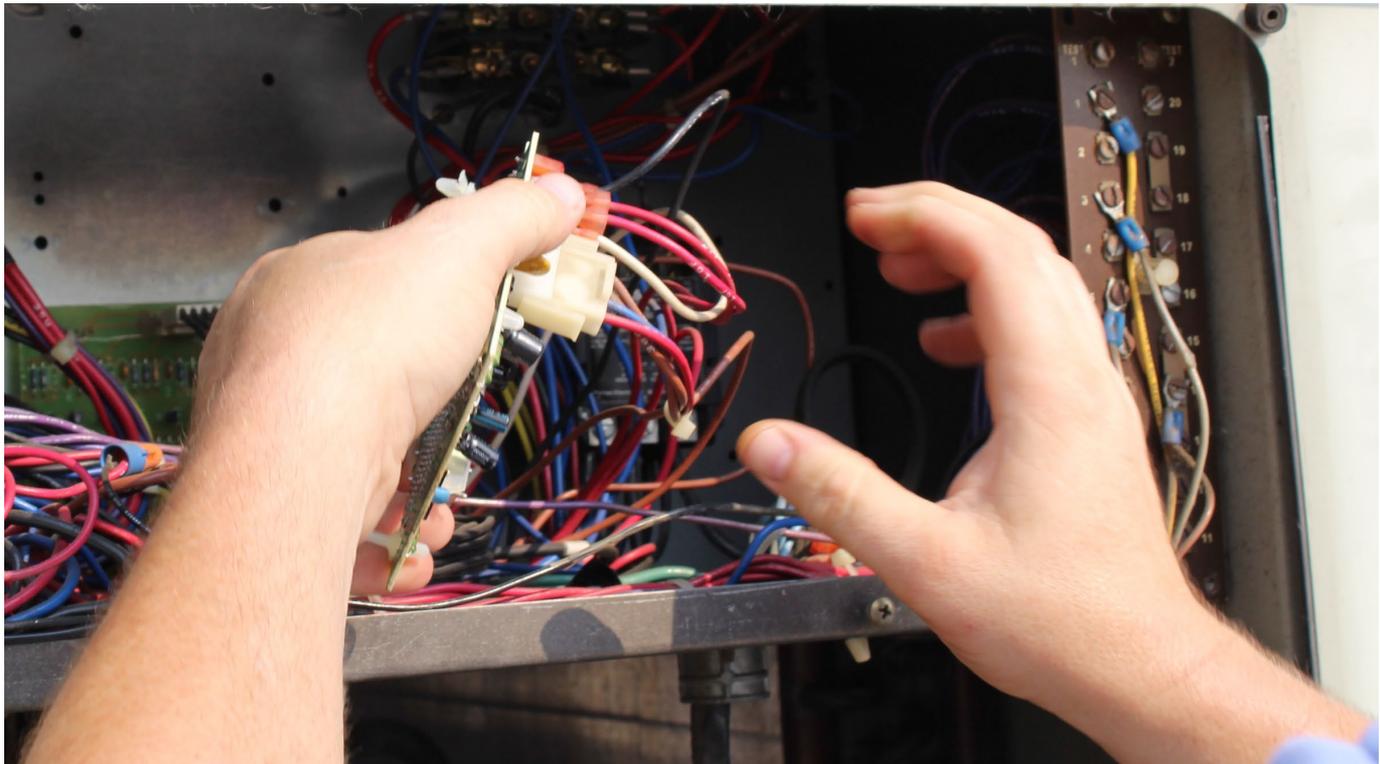
Adapter Board

- 3 Remove the old control. Position the 59-4819 (3AD-2) Adapter Board so that the text is right side up, then fasten it in place using the holes marked "METAL STANDOFF".



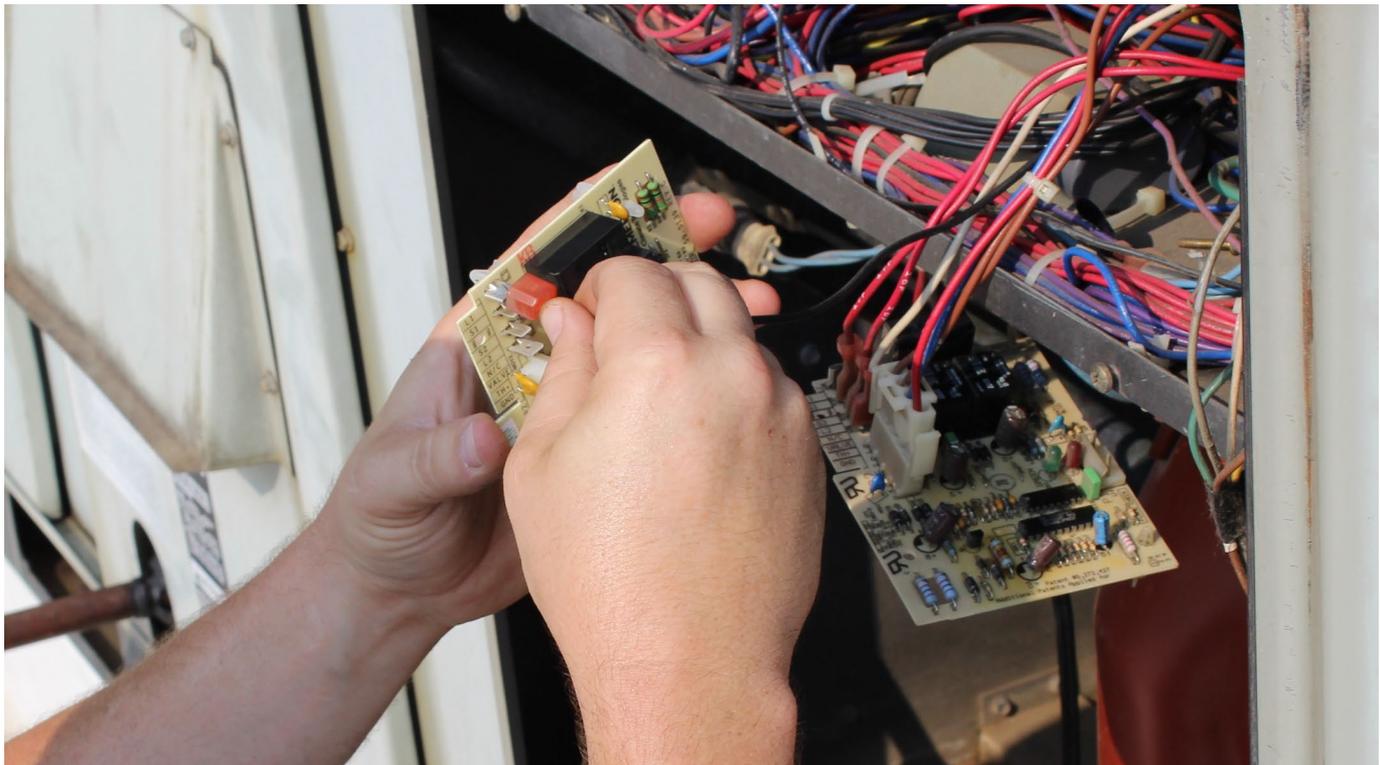
Connect 24 VAC Wiring Harness

- 4 Attach the quick connect end of the 24 VAC Wiring Harness (0115-0263) to the HOT 24 VAC tap of the low voltage transformer.



Standoffs

- 5 Align the plastic standoffs on the 50E70-820 control with the remaining holes on the 59-4819 (3AD-2) adapter board and gently press on the control until all 4 standoffs snap into place.



Finish Connecting 24 VAC Harness

6 Connect the 4-pin plug of the 24 VAC Wiring Harness (0115-0263) to the 50E70-820 control. Reconnect the remainder of the wiring (edge card connector or quick connects).

NOTE: Equipment manufactured after 1/8/1996 do not require the 59-4819 (3AD-2) adapter board or 24 VAC wiring harness (0115-0263)



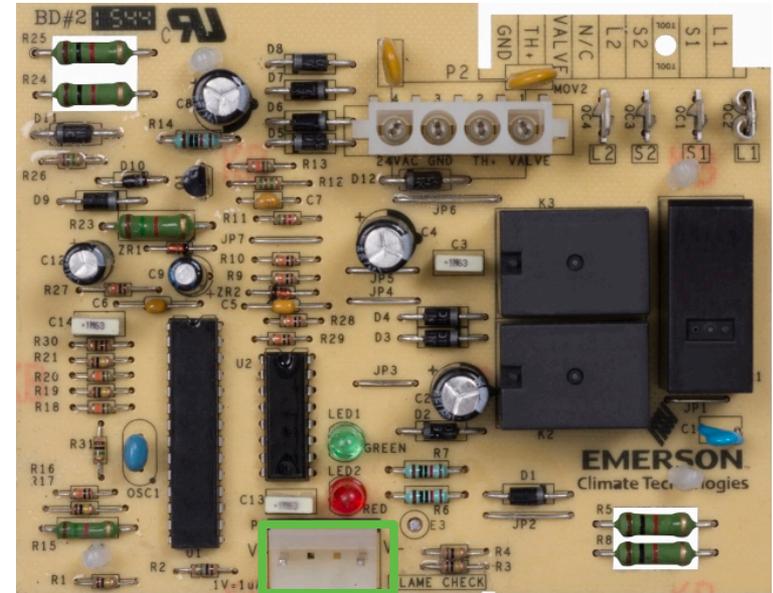
Reconnect and verify

7

Reconnect the power and gas to the furnace and use test pins to verify a good flame sense reading.

Test:

- The furnace must have a call for heat and the burners producing flame.
- Set a multimeter to vDC and place a meter probe on each pin.
- Convert vDc to MicroAmps using a 1:1 ratio.
- A good flame sense reading will be between 1.0 – 5.0 μ A.



Flame current test pads

50E70-820 LED Diagnostic Codes

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