COPELAND

White-Rodgers Ignitors

WHITE-RODGERS
by COPELAND

Business and Product Overview

Types of Ignition in Hot Air Gas Furnaces

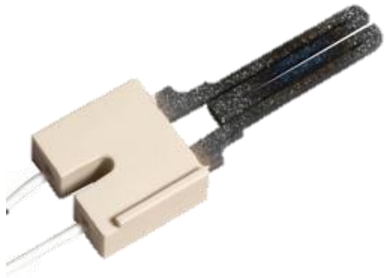
Proven Pilot	Direct Spark	Hot Surface Ignition	
		120 VAC	80 VAC
			
Grounded pilot burner, spark to pilot electrode and pilot flame sensor	Ground electrode, spark to ground electrode. Assembly sometimes includes a main burner flame sensor	Resistive high temperature heating element that heats up to ignition temperature and lights the burner. 120V carbide models may sense flame though ignitor (direct sense) or through separate flame sensor (indirect sense). 80 and 120 Voltnitride models are indirect sense.	

Ignition Systems – Pros and Cons

Direct Spark Ignition

- Spark probe rarely wears out.
- Spark coil on board is ignition part that fails most, making repair highest $ of 3.
- Quick Ignition – doesn’t have to wait for anything to heat up.
- Foreign objects can short the spark gap and require cleaning

Silicon Carbide



- Proven ignition component for over 60 years.
- The ignitor may require routine replacement.
- Carbides are somewhat sensitive in hostile environments.

Silicon Nitride

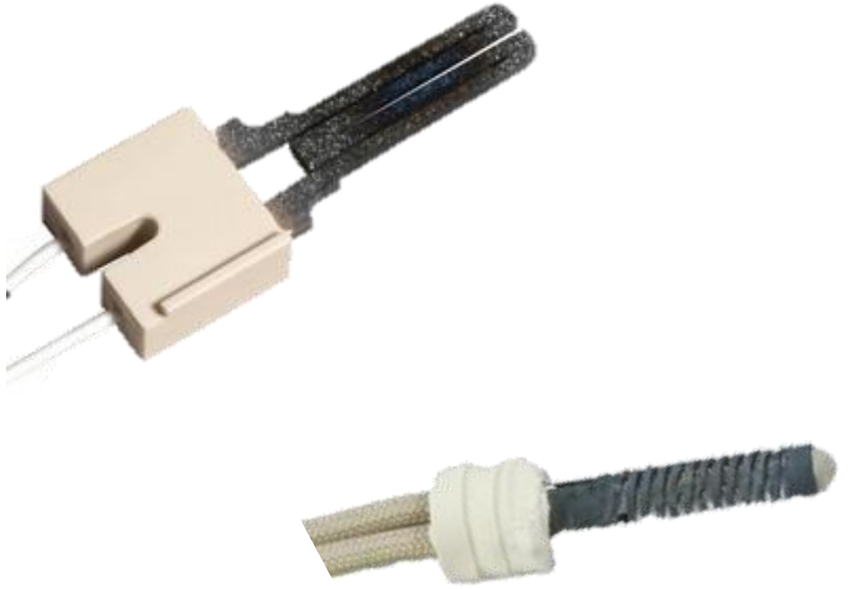
- Premium ignitor.
- Durability & longevity over carbide outweighs initial cost.
- Not sensitive to oils or easily broken.
- Retrofitting from carbide becoming easier w/ universal options.

TECH TIP: The Silicon Nitride ignition system is preferred by most furnace manufactures.

White-Rodgers Silicon Carbide Ignitors

Used by manufacturers for the last 60 years, silicon carbide ignitors are typically about 3/16" thick and come in a “W” form or a spiral.

At White-Rodgers, we offer dozens of 120V OEM replacements for brands such as Amana, Lennox, Rheem, Trane, Goodman, and Nordyne.



White-Rodgers Silicon Carbide Ignitors

AMANA, LENNOX

767A-356

WHITE-RODGERS

767A-357

YORK, LENNOX

767A-361

WHITE-RODGERS

767A-365

WHITE-RODGERS

767A-366

AMANA, LENNOX

767A-369

CARRIER, TRANE, RHEEM

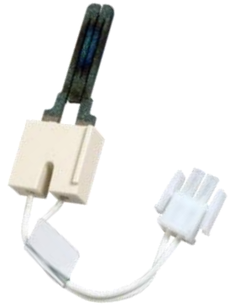
767A-370

GOOMAN, YORK, NORDYNE, TRANE, AMANA, ARMSTONG

767A-371

RHEEM, LENNOX, TRANE

767A-372



GOOMAN, YORK, NORDYNE, TRANE, ARMSTONG

767A-373

White-Rodgers Silicon Carbide Ignitors

WHIRLPOOL

767A-374

WHITE-RODGERS

767A-375

TRANE

767A-376

TRANE

767A-377

AMANA

767A-378

YORK

767A-379

ARMSTRONG LENNOX

767A-380

YORK

767A-381

TRADE

767A-382

RHEEM

767A-383

GOOMAN

767A-384

GOOMAN

767A-385

White-Rodgers OEM Direct Nitride Ignitors

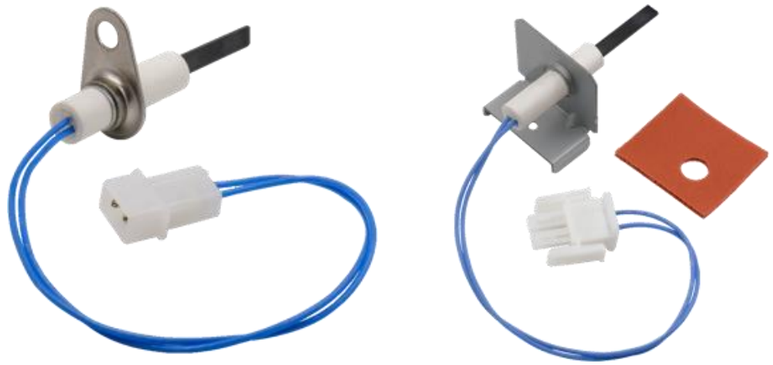
A Nitride Ignitor is a compound of Silicon & Nitrogen (Si_3N_4) where the nitride probe has either 24v, 80v, or 120v applied to the wire leads.

The voltage causes the probe to glow hot enough to ignite the gas/oxygen mixture coming out of the furnace burners.

Nitride options exceed carbide ignitors in durability and lifetime, and is the most popular successor to older standing pilot systems.

White-Rodgers offers both 80v and 120v replacement options in Nitride Ignitors, each of which should be paired with control boards that match that voltage output.

80v Nitride



120v Nitride

White-Rodgers OEM Direct 80v Nitride Ignitors

TRANE	AMANA	THERMO PRODUCTS	LENNOX, RHEEM	TRANE
768A-815	768A-842	768A-843	768A-844	768A-845

White-Rodgers OEM Direct 120v Nitride Ignitors

NORDYNE

767A-356

CARRIER

767A-357

CARRIER

767A-361

CARRIER

767A-365

YORK

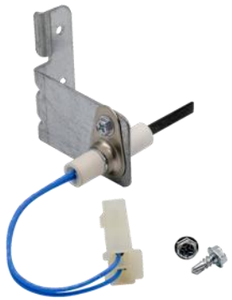
767A-369

LENNOX

767A-370

TRANE

767A-371



GOODMAN

767A-372

TECH TIP: White-Rodgers 789A Series gives you 120V OEM Plug-n-Go Harness Connectors.

White-Rodgers Universal Upgrade 120V Silicon Nitride HotRod and HotRod EX

HOTROD	HOTROD
21D64-2	21D64-44

21D64-5PK

- HotRod™ replaces over 170 flat and spiral ignitors
- HotRod™ EX replaces over 260 ignitors
- Wire leads are 14.5" & 15.5" w/ stripped ends
- Includes universal mounting brackets & ceramic wire nuts
- HotRod also comes in a money saving 5 pack – 21D64-5PK

TECH TIP: White-Rodgers HOTROD Series gives you options to upgrade from silicon carbide for longer life & fewer callbacks.

What Makes the HotRod EX Ignitor Better?

Benefit	Feature	Function
Easy to Install	Compact size for easier installation	Easier to install, more forgiving placement
	Simple, universal mounting bracket	**Adapts to over 200 OEM ignitor applications**
Improved Reliability	Nitride design	More robust than silicon carbide design
Easy to Service	Cross reference information on side panel of the box with expanded version within installation/instruction manual	Have the right replacement at the right time
Peace of Mind	5 Year warranty	Builds confidence, Provides value

White-Rodgers Ignitor Warranties

5 Years

- HotRod Nitride Universal
- Vs. Honeywell Glowfly warranty: 3 years

3 Years

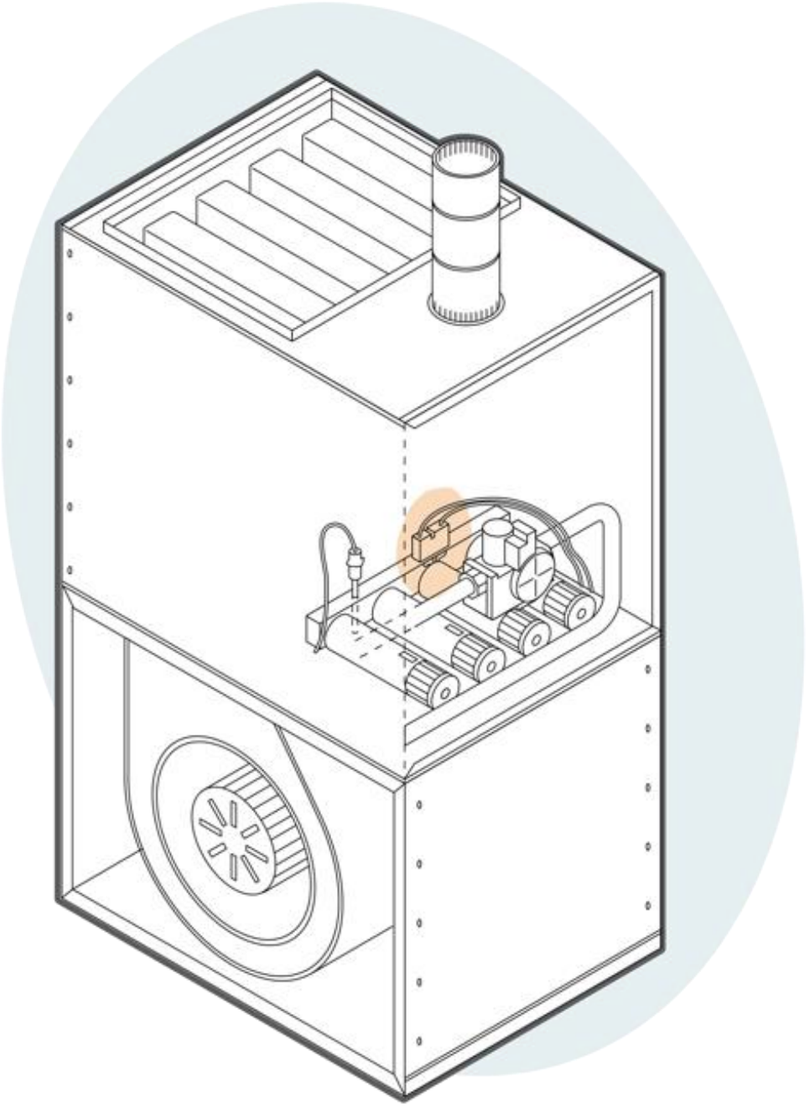
- 120V Nitride OEM replacement
- Existing 80V Nitride OEM replacement

1 Year

- All Silicon Carbide OEM replacement

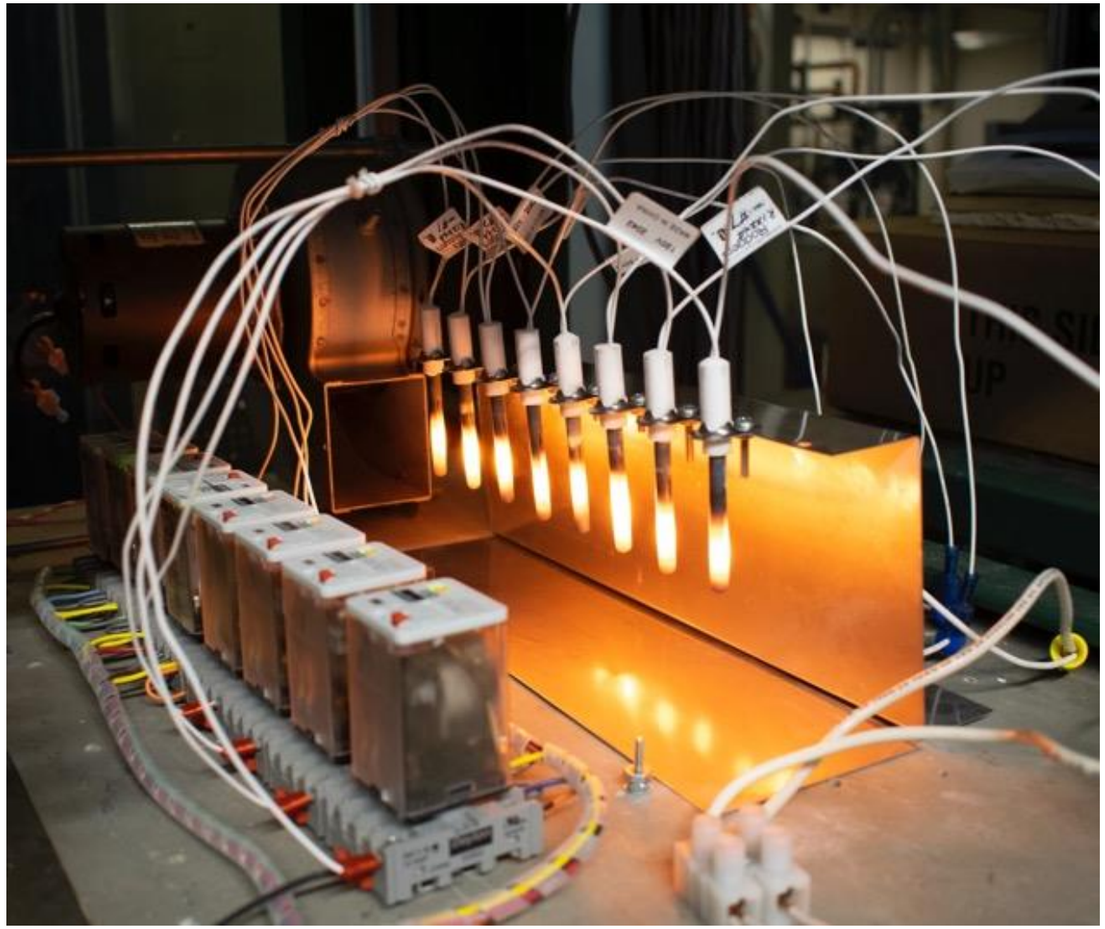
Market Data

- Our projections put the total replacement market in the United States at ~60 Million forced hot air gas furnaces.
  - West 13.9 Million
  - Midwest 18.7 Million
  - Northeast 11.3 Million
  - South 13.9 Million
- Whether with an OEM direct silicon carbide replacement or with the more durable silicon nitride, there is a healthy replacement market for these products.
- Typical replacement rates:
  - *Carbide = 2-5 Years*
  - *Nitride = 5-10 Years*



White-Rodgers Ignitors

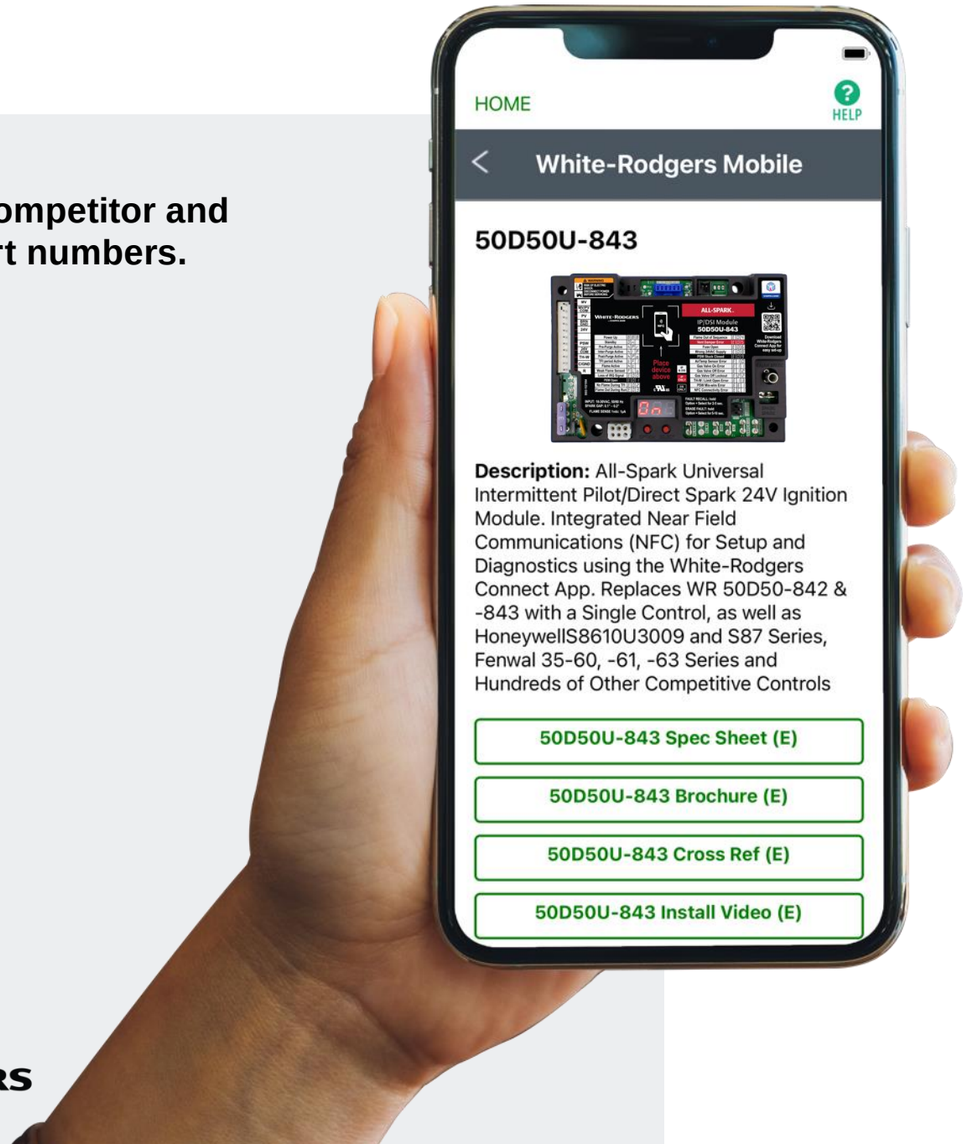
- UL and CSA Certified Lab
- OEM Approved
- Ongoing Product Testing
- Controls and Valves Manufacturer
- Systems Application Expertise
- Pioneer in 80V Ignitor Applications



Comprehensive Cross Reference & Product Information

Find the right part while on the job.

Search by OEM, Competitor and White-Rodgers part numbers.



Your on-the-go resource for:

- Complete cross reference
- Product information and spec sheets
- Installation information and videos
- Wiring diagrams
- Select product by features
- Priority technical support

WR Mobile App

Search for “WR Mobile” in both Apple and Google Play Stores

Desktop Version

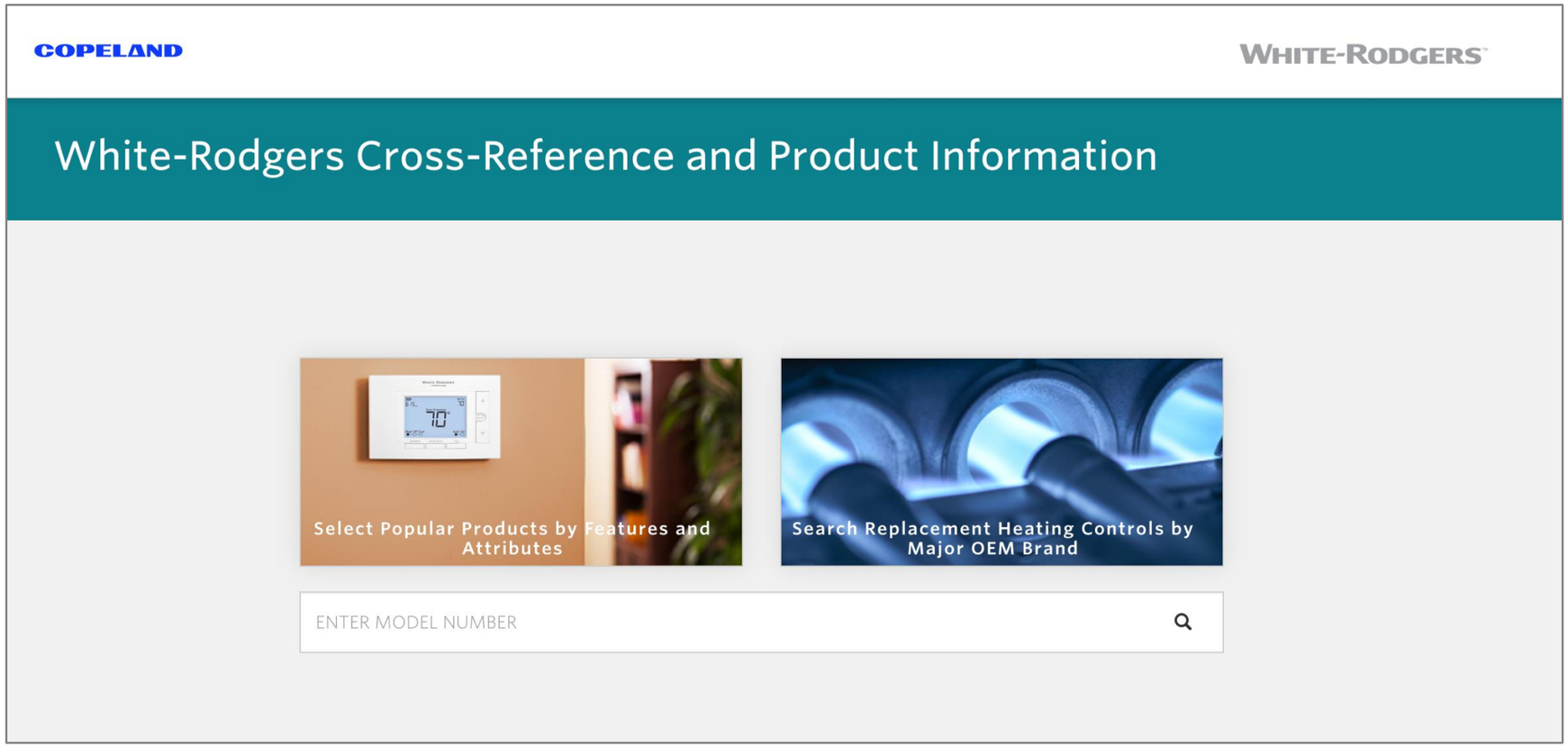
Access the online version HERE

WHITE-RODGERS by COPELAND

White-Rodgers Cross Reference

Go to: https://webapps.copeland.com/wrproductselector/

- Enter the Model Number or click on: Search Replacement Heating Controls by Major OEM Brand

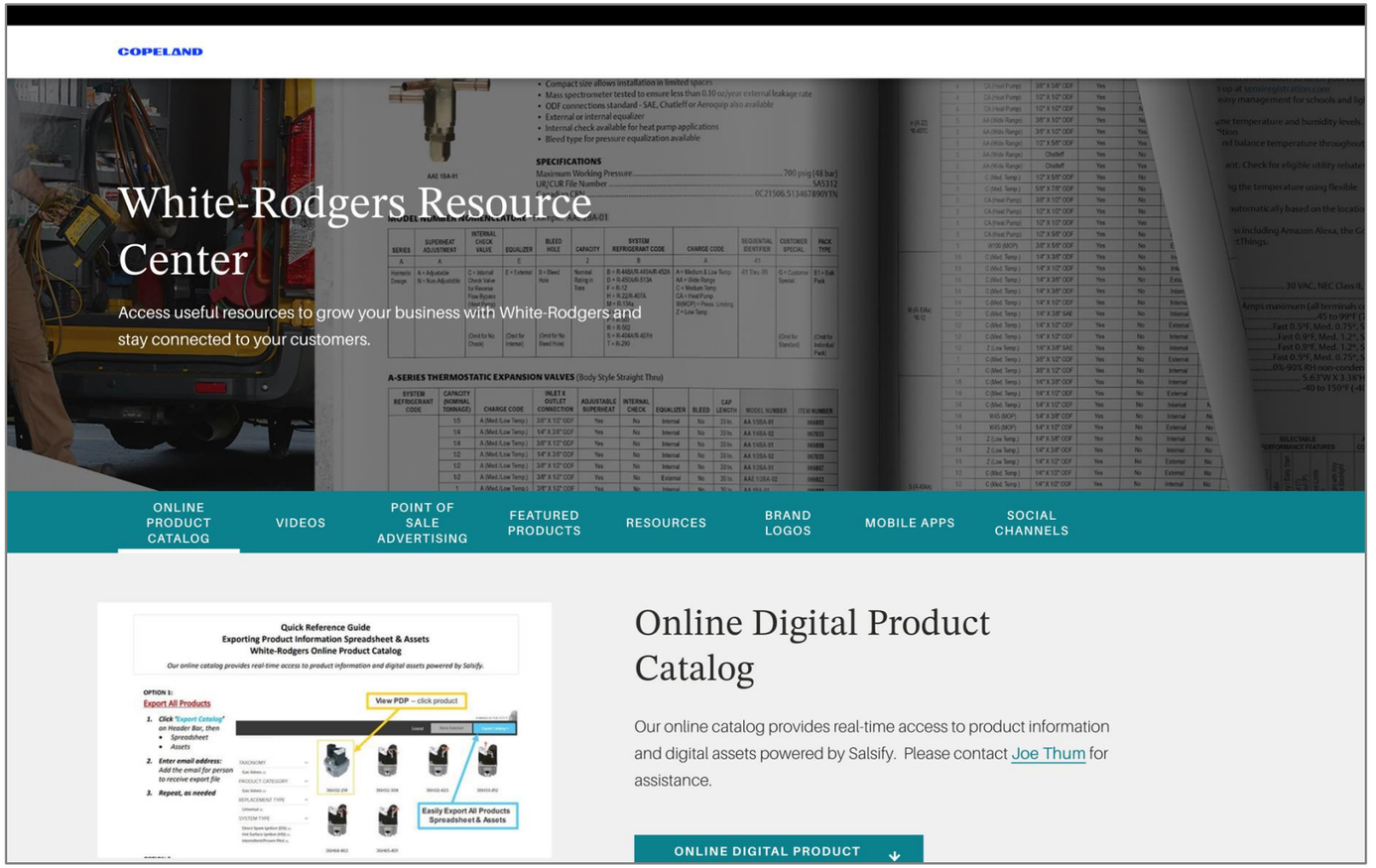


Wholesale Resource Site

Access useful resources to grow your business.
Visit: https://www.copeland.com/en-us/brands/white-rodgers/white-rodgers-wholesaler-resource-center

You'll find videos, stocking lists and product launch information for the following product families:

- Heating Controls
- Cooling Controls
- Sensi Smart Thermostats
- Traditional Thermostats
- Contractor Rewards
- Product Merchandising



WHITE-RODGERS
by COPELAND

Technical Overview

Ignition Type History

1969

Carborundum Co. makes 1st Silicon Carbide ignitor

1987

The National Appliance Energy Conservation Act set a minimum of 78% Annual Fuel Utilization Efficiency (AFUE)

Manufactures stop building furnaces with standing pilot light ignition systems

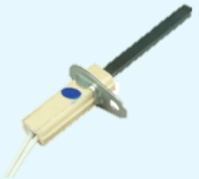
1997

Trane & Lennox lead the way in switching from Silicon Carbide to 80v Silicon Nitride

2006

Most* manufactures have switched from Spark ignition, Silicon Carbide, & 80v Nitride to 120v Nitride

*Exception: Rheem still uses Direct Spark Ign.



2012

Universal 120v Silicon Nitride designed to replace Silicon Carbide introduced

Upgrading to SiNi is made available

2020: W/R begins offering 120v Direct OEM Nitride Replacements

1997-Present 26M Furnaces Installed Nationally

Era of Direct Spark & Silicon Carbide

Era of Silicon Carbide & 80v Silicon Nitride

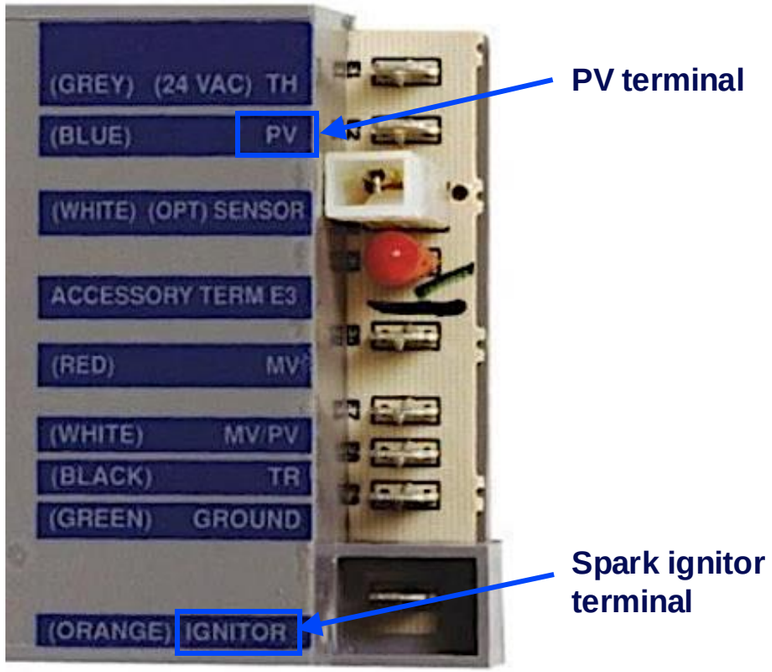
Era of 120v Silicon Nitride

Existing Markets already covered with White-Rodgers product offerings

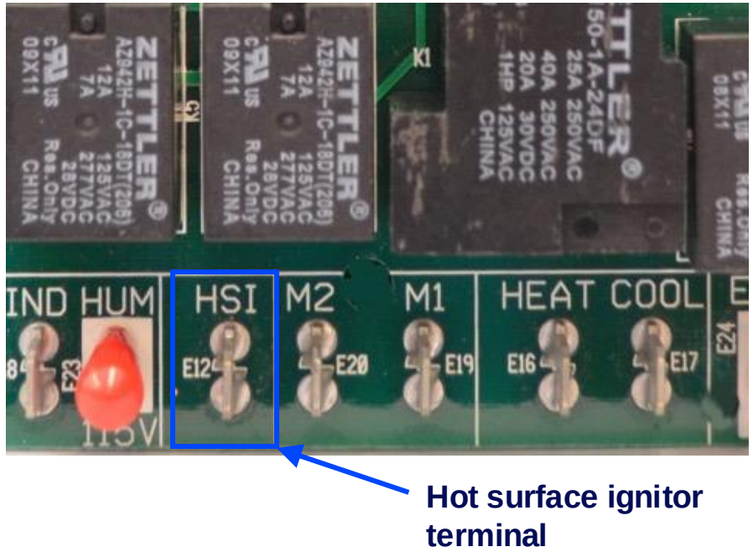
Verifying Ignition Source

A visual inspection of the current circuit board will identify the ignition source.

- PV is the Pilot Valve: Intermittent Pilot
- No PV with Spark Ignitor terminal: Direct Spark
- HSI: Hot Surface Ignition



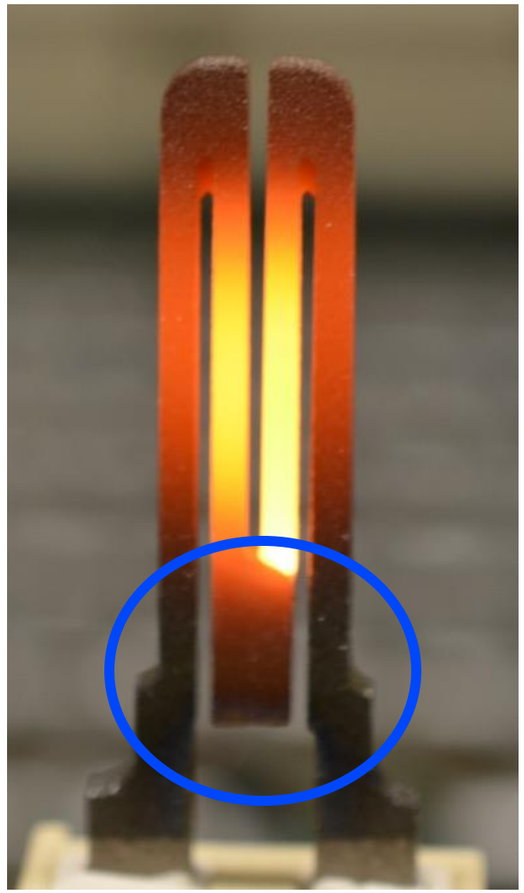
Proven Pilot



Hot Surface Ignition

When Should You Replace a Carbide Ignitor?

- Check for cracks, visually, prior to the ignition being energized
- OR, look for a bright spot
  - During the warm-up period, if you see a bright “hot spot” this will indicate potential cracking and maintenance replacement
  - **NOTE:** Ignitors can still get hot enough to light gas even if there is a hairline crack.
- Check resistance
  - Cold Resistance should be between 40 and 70 Ohms



TECH TIP: It is always best practices when servicing a furnace to observe the ignitor and look for a hot spot!

How it Works – Direct Spark

Direct Spark Ignition

- Direct burner ignition system
- Spark electrode is located near combustion surface of burner
- High voltage pulses (in excess of 10,000V) cause a spark to bridge the 1/8" gap between the spark ignitor and the burner ground
- Gas valve opens and passes fuel across ignition source
- Electronic spark is hot enough to ignite the burner
- Burner flame is proven through sensing circuit and allows gas valve to stay open for duration of call

Direct spark ignition

How it Works – Proven Pilot and HSI

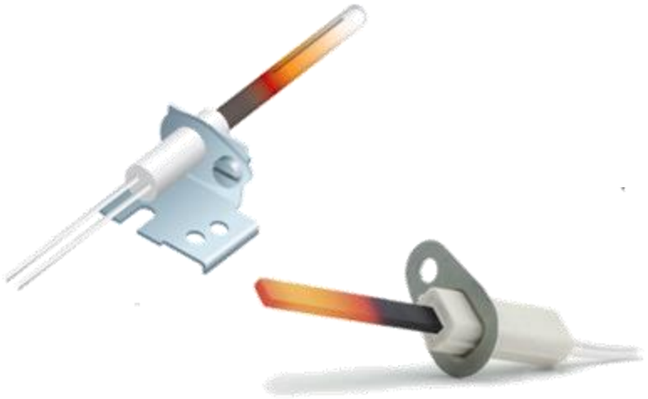
Intermittent/Proven Pilot Ignition

- A pilot tube extends from the gas valve to the pilot burner
- Pilot flame is not standing, but automatically lit during a call for heat
- A flame sensing circuit proves the pilot flame to keep pilot valve open and allow main valve to open

Hot Surface Ignition

- Direct burner ignition system
- Current passes through resistive strip, causing it to heat to a minimum of 1,200°F
- Gas valve opens and passes fuel across ignition source
- Burner flame is proven through sensing circuit and allows gas valve to stay open for duration of call

Intermittent/Proven pilot ignition



Hot surface ignition

White-Rodgers Ignitor Testimonials

"I stopped replacing manufacturer original hot surface ignitors and have started using these universal Silicone Nitride replacements. ***Haven't had to replace a single one of these yet...****"*

— September 10, 2014 – jcspress

"I ***had a little trouble fitting in*** *but I used some muffler seal putty to seal the edges and it* ***works perfectly.****"*

— November 7, 2014 – Ablejo

"This ignitor works very well in many applications and excellent in some brand/model specific applications. I have [used] this type of universal ignitor many times and it ***is very reliable*** *and pretty* ***easy to install.****"*

— April 20, 2016 – Anonymous Technician

*"****Five Stars****. Our service tech installed the part and worked like a charm!"*

— March 1, 2018 – Peter Foss

WHITE-RODGERS
by COPELAND

Installation Overview

Installation

In this segment, we'll look at the installation process for a direct replacement for Carrier as well as our Universal 120V HotRod Nitride Ignitor.

Carrier Direct Replacement

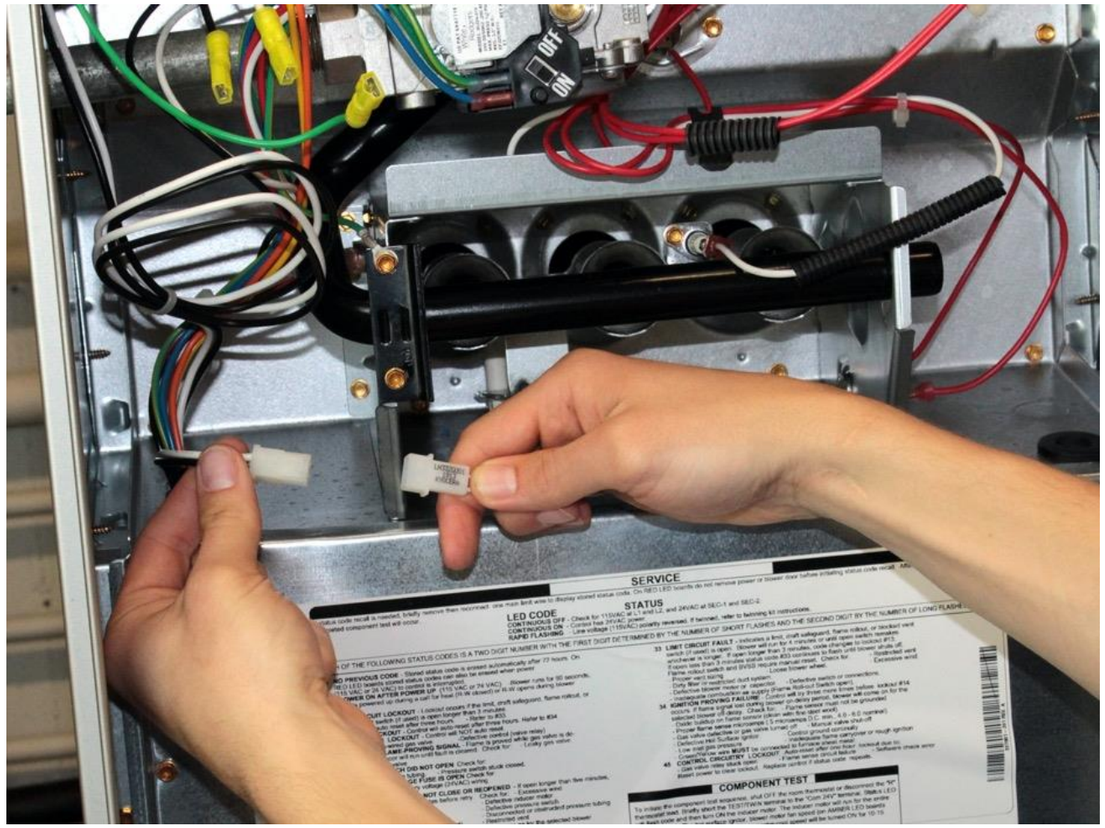
120V HotRod Nitride Ignitor Kit

First, let’s take a look at the direct replacement...

TECH TIP: When replacing an ignitor, always check that the replacement is appropriate for the existing board 80v/120v.

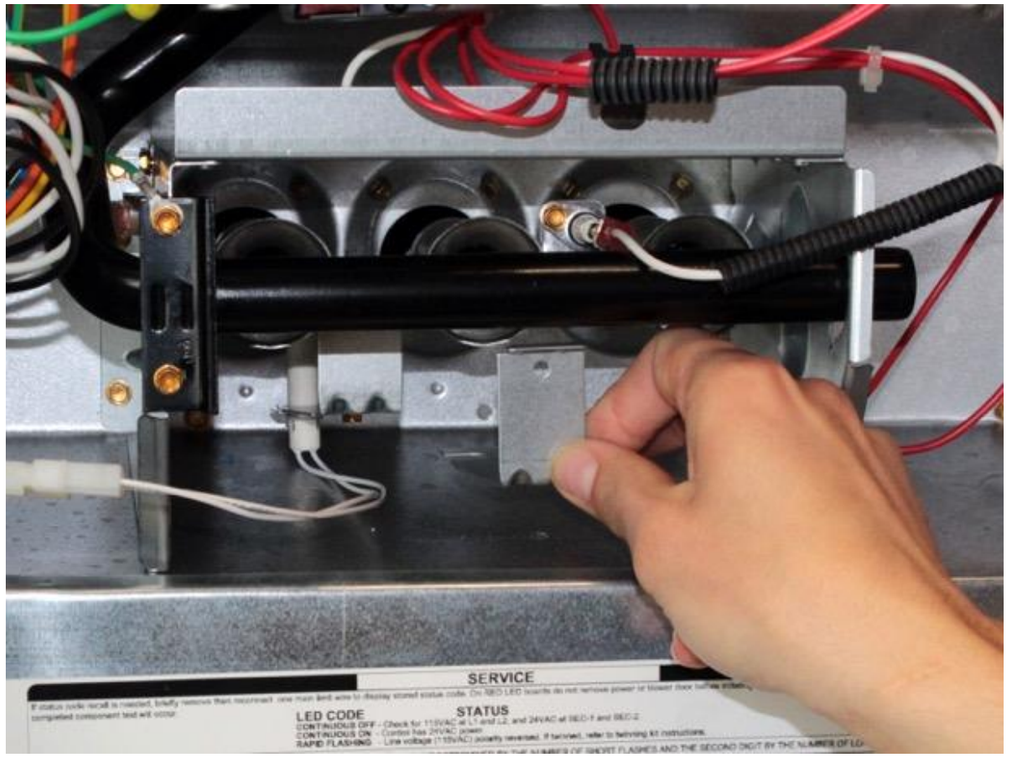
Installation – Step 1 – Carrier Direct Replacement

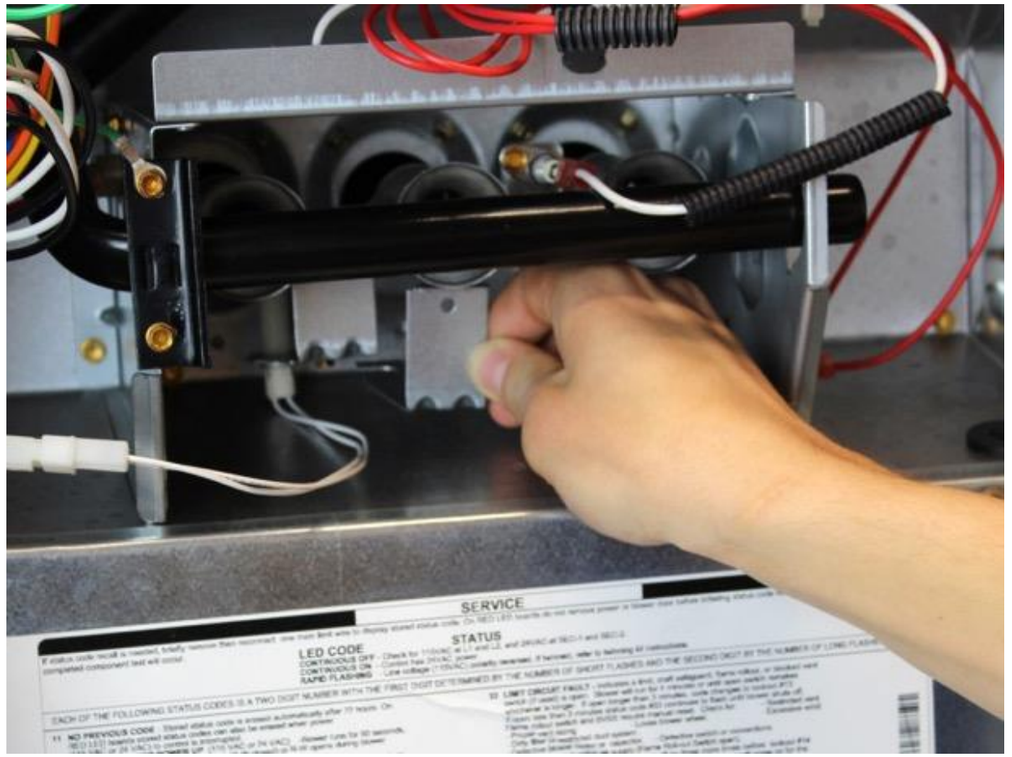
1. Disconnect gas, power and wires.



Installation – Step 2 – Carrier Direct Replacement

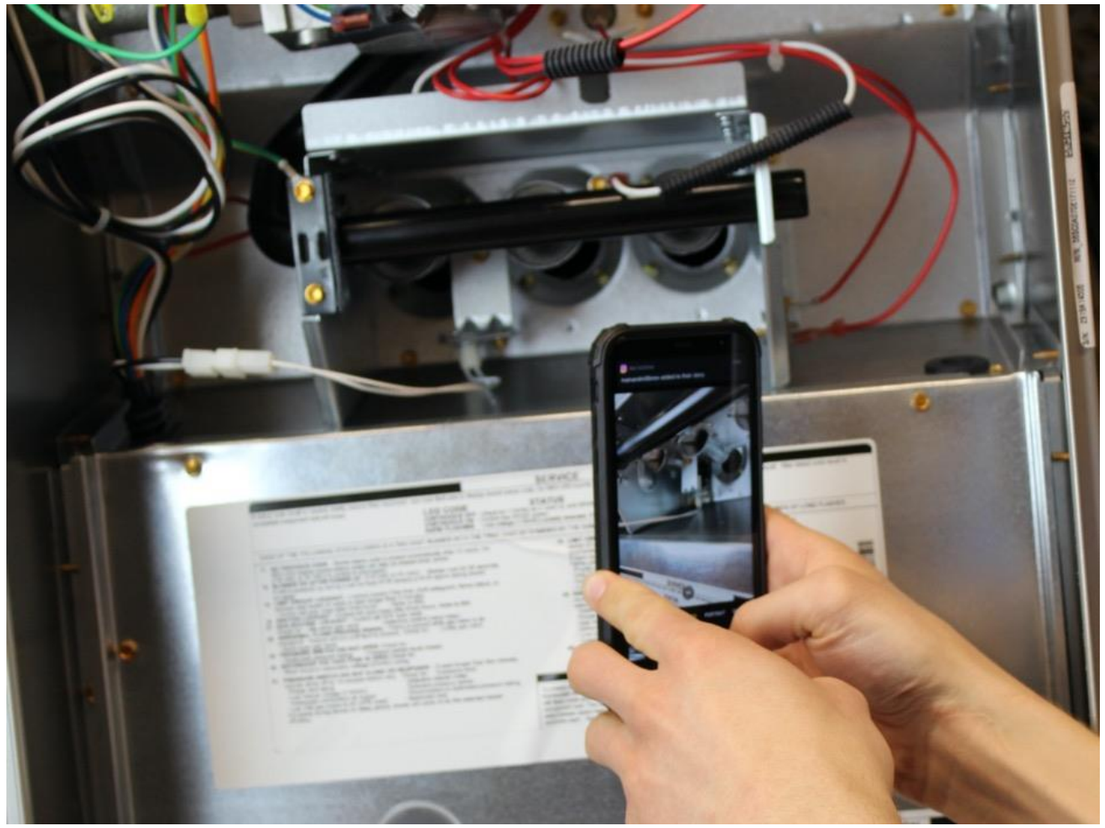
2 Check the bracket type used in the current unit and choose the correct replacement part.





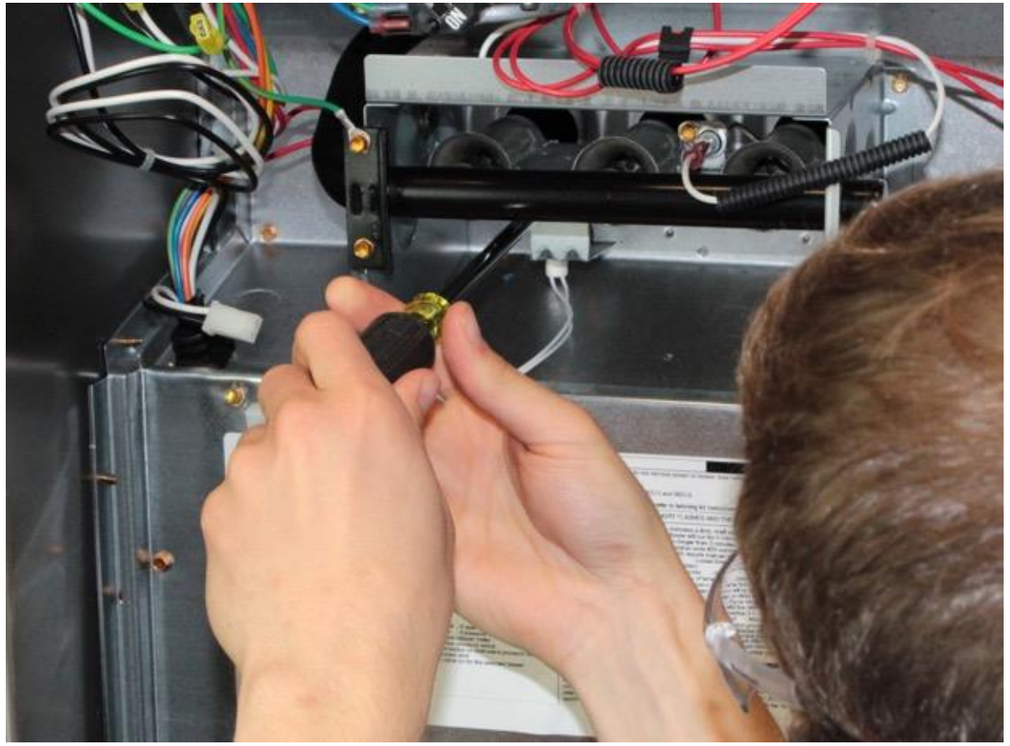
Installation – Step 3 – Carrier Direct Replacement

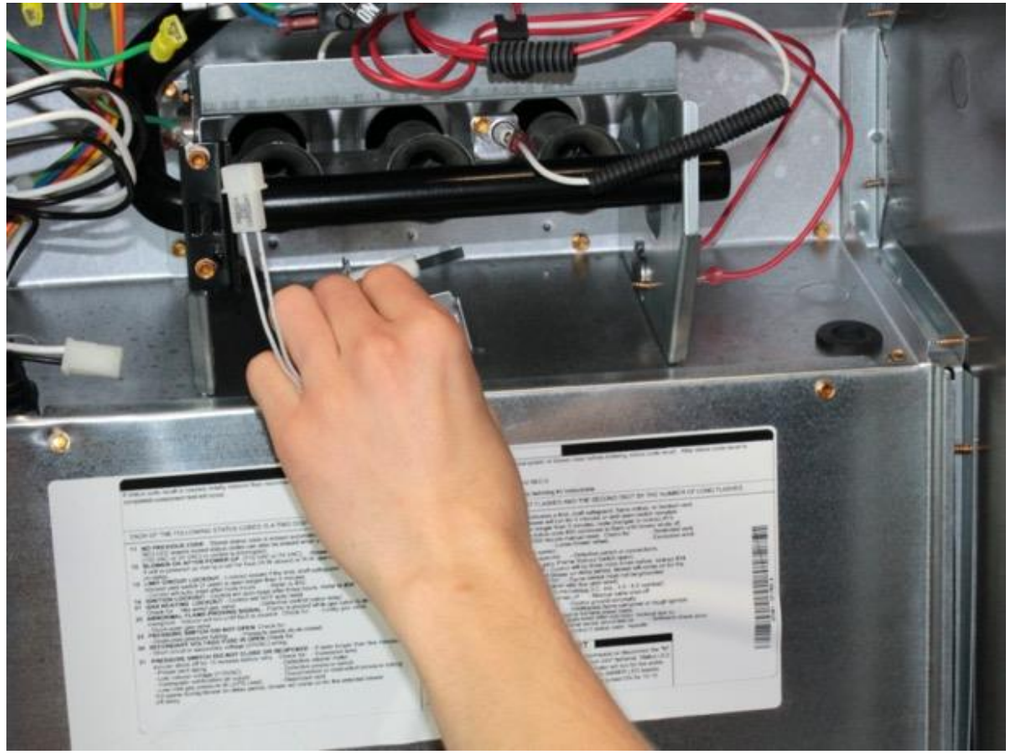
3 Take a photo of the current blade placement in order to set-up the new blade the same.



Installation – Step 4 – Carrier Direct Replacement

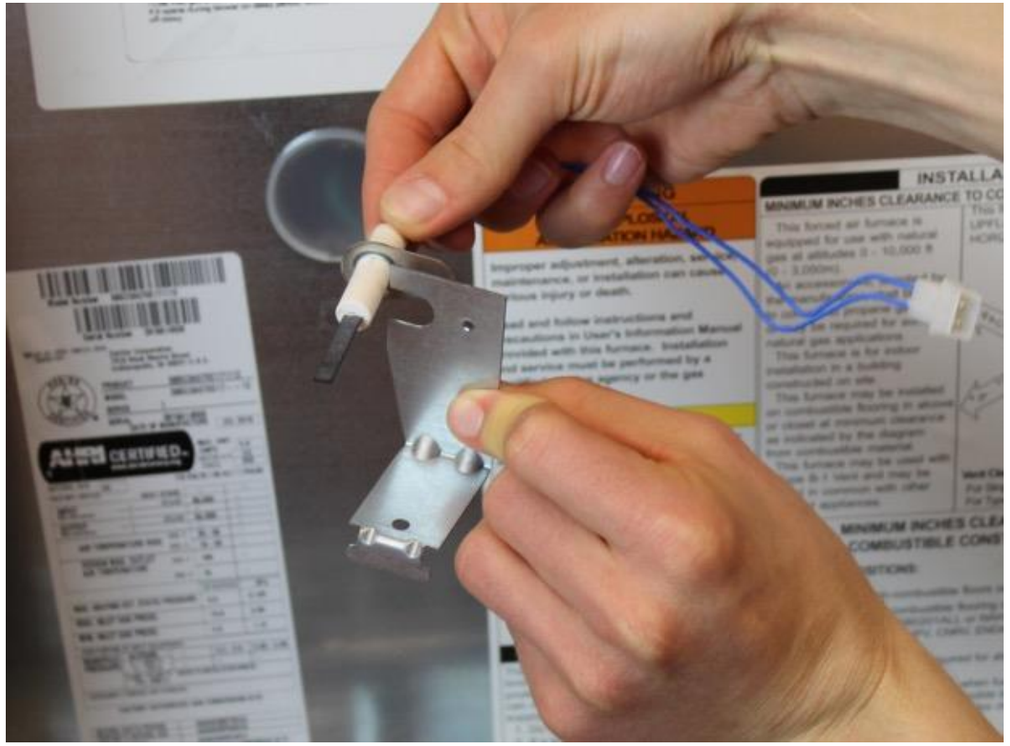
4 Remove the screw from the ignitor, slide and rotate to remove from the burner assembly.





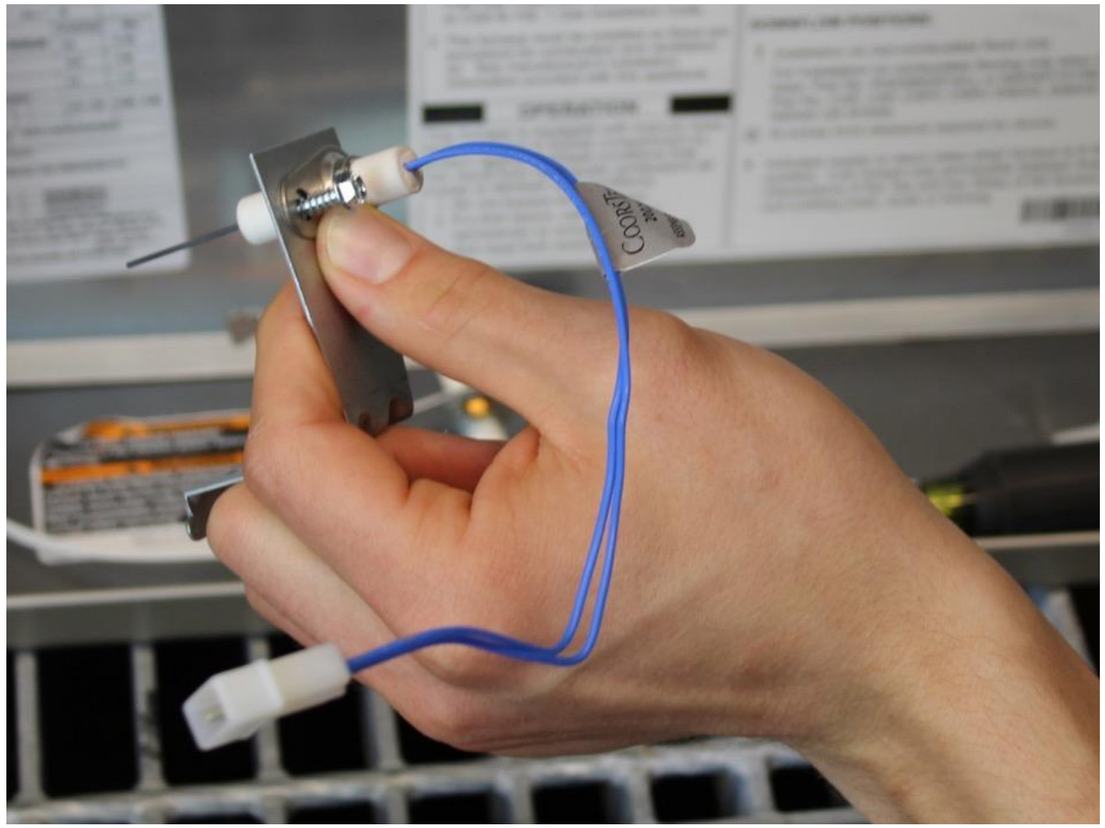
Installation – Step 5 – Carrier Direct Replacement

5 Assemble the White-Rodgers bracket by threading the ignitor through the semi-circle.



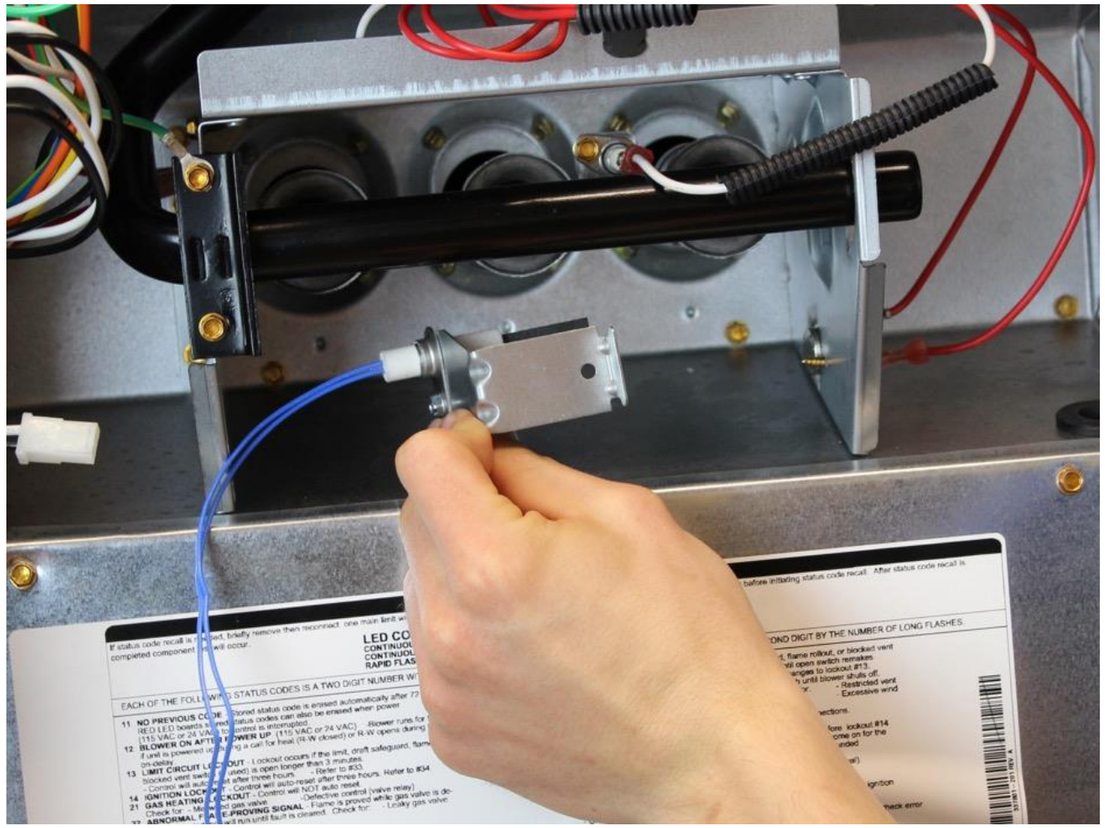
Installation – Step 6 – Carrier Direct Replacement

6 Using the screw from White-Rodgers' replacement, place the screw in the bracket.



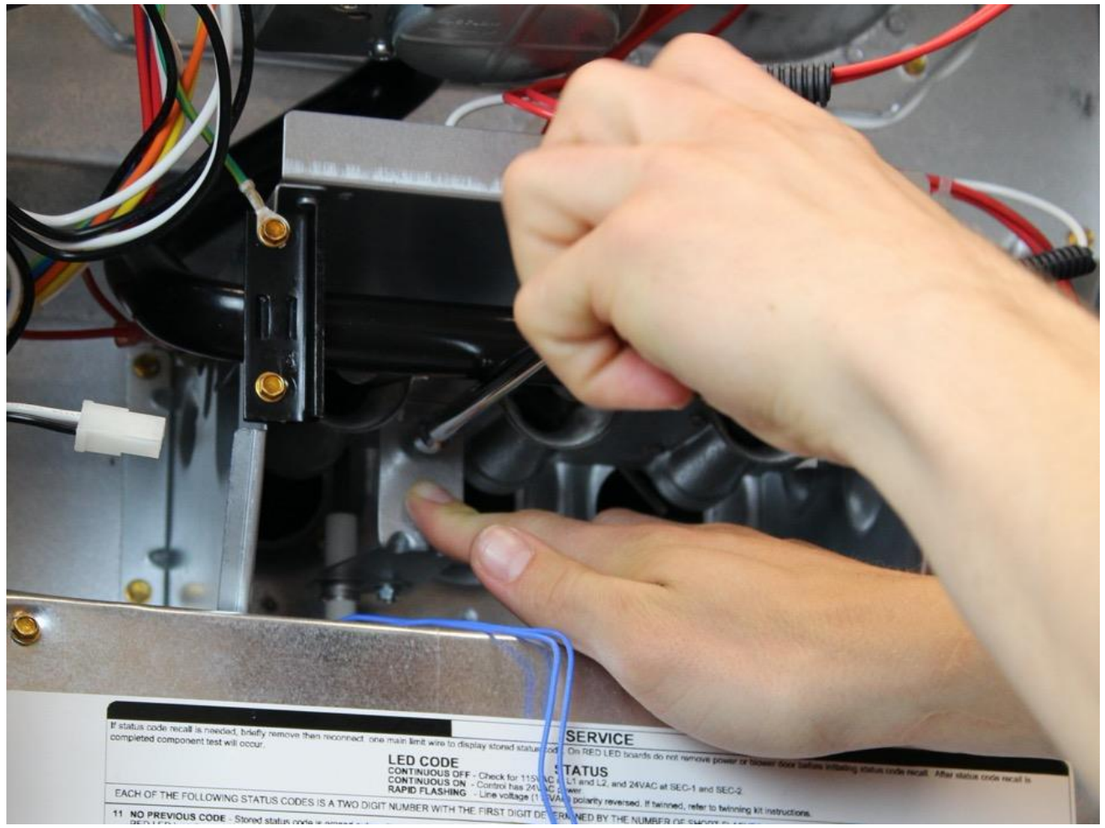
Installation – Step 7 – Carrier Direct Replacement

7 Slide the new ignitor and bracket assembly into the burner box. Align with the existing hole.



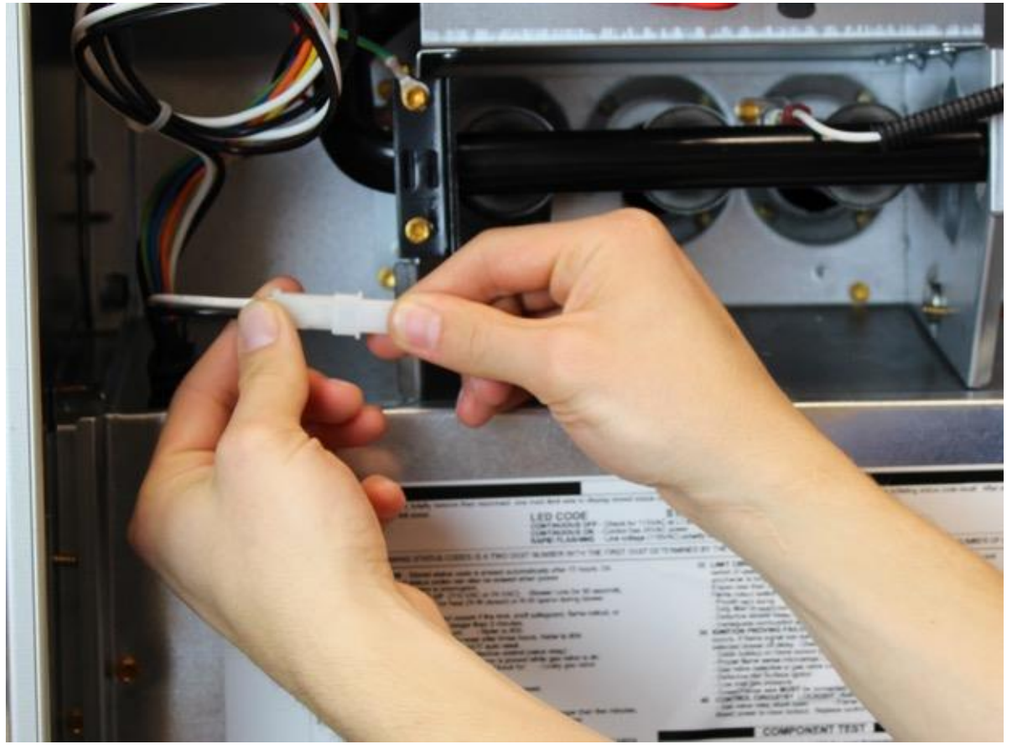
Installation – Step 8 – Carrier Direct Replacement

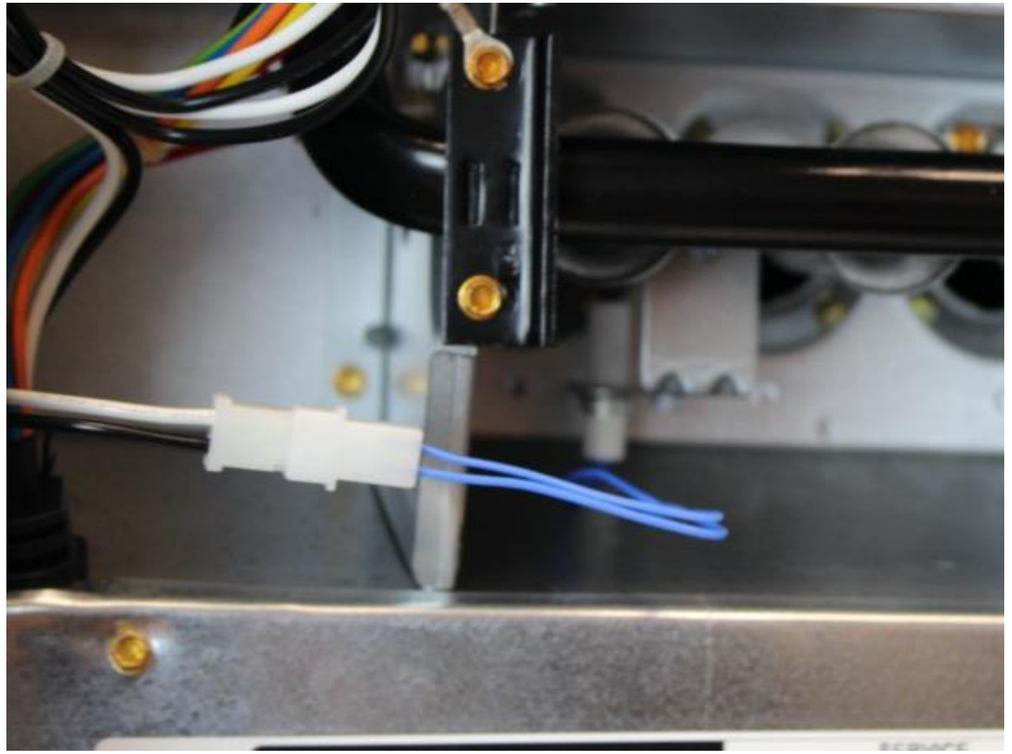
8 Use the second screw provided to attach the bracket.



Installation – Step 9 – Carrier Direct Replacement

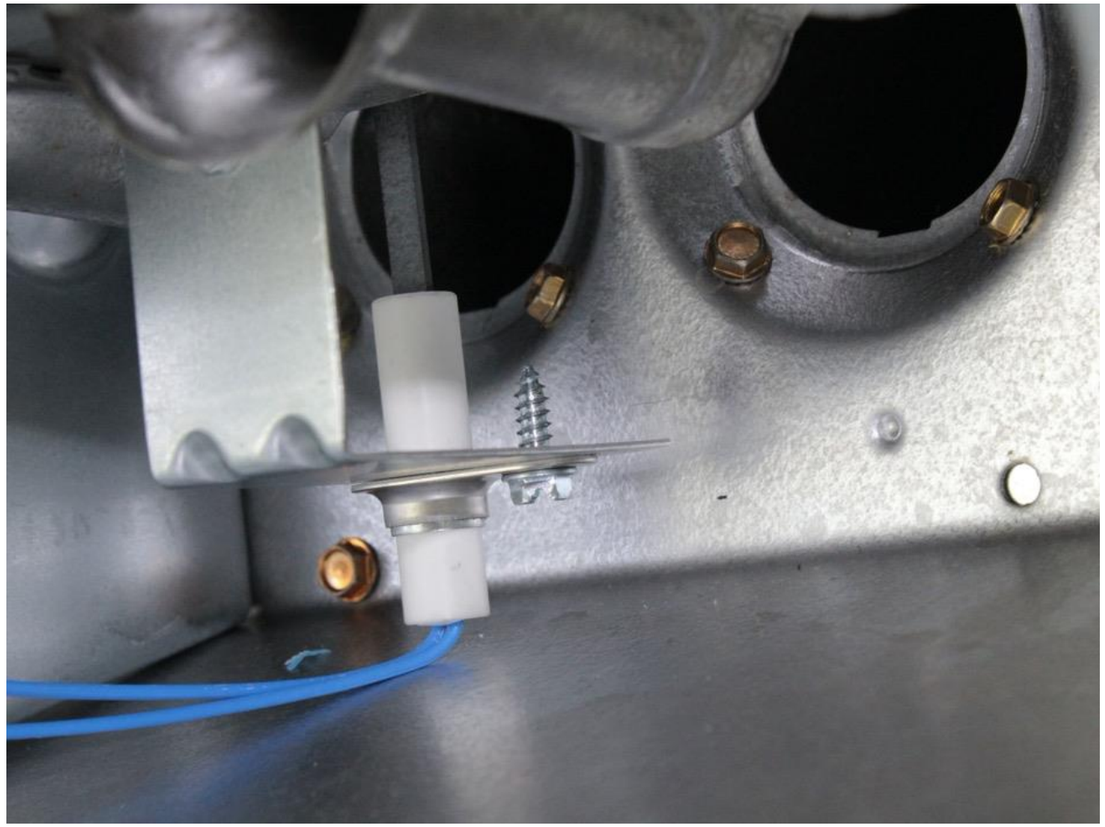
9 Connect the new ignitor to the factory wiring connector on the furnace.





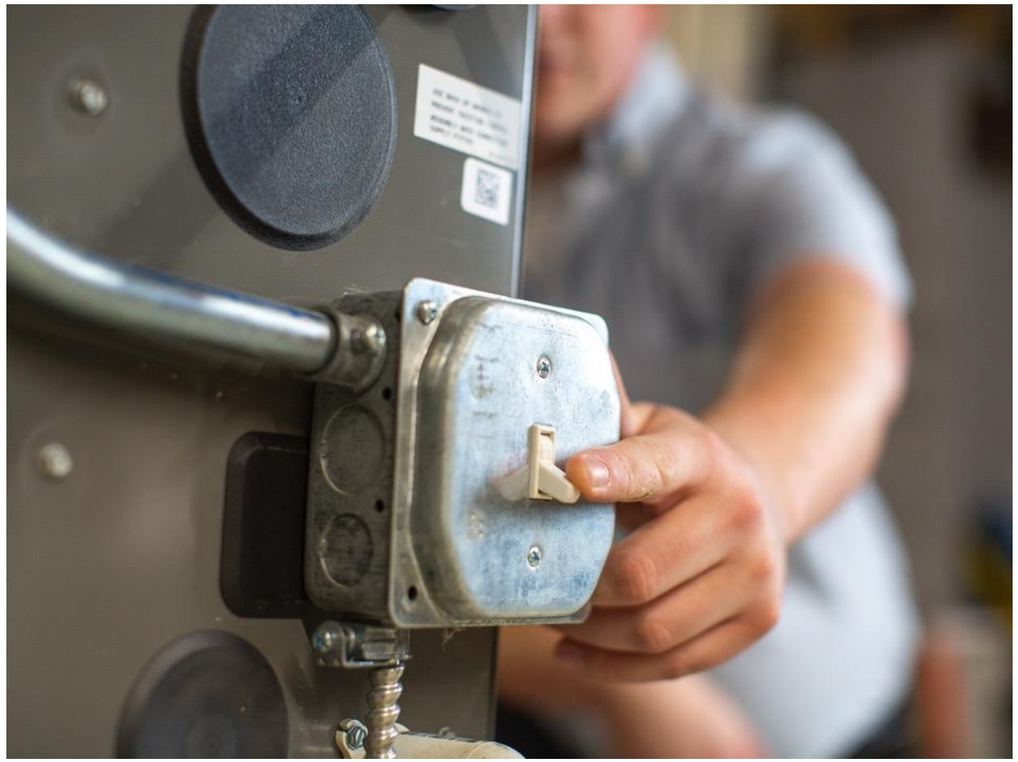
Installation – Step 10 – Carrier Direct Replacement

10 Make sure the orientation of the blade matches your photo of the old ignitor.



Installation – Step 11 – Carrier Direct Replacement

11 Reconnect the gas and power.



HotRod

Now, let's take a look at the installation steps for our Universal 120V HotRod Nitride Ignitor.

- HotRod™ replaces over 170 flat and spiral ignitors
- Wire leads are 14.5" & 15.5" w/ stripped ends
- Includes universal mounting brackets & ceramic wire nuts
- HotRod™ also comes in a 5 – single ignitor kits – pack (21D64-5PK)

Installation – Step 1 – HotRod

1. Disconnect gas, power and wires, take a photo first to ensure you have a record of the existing ignitor’s location.

Installation – Step 2 – HotRod

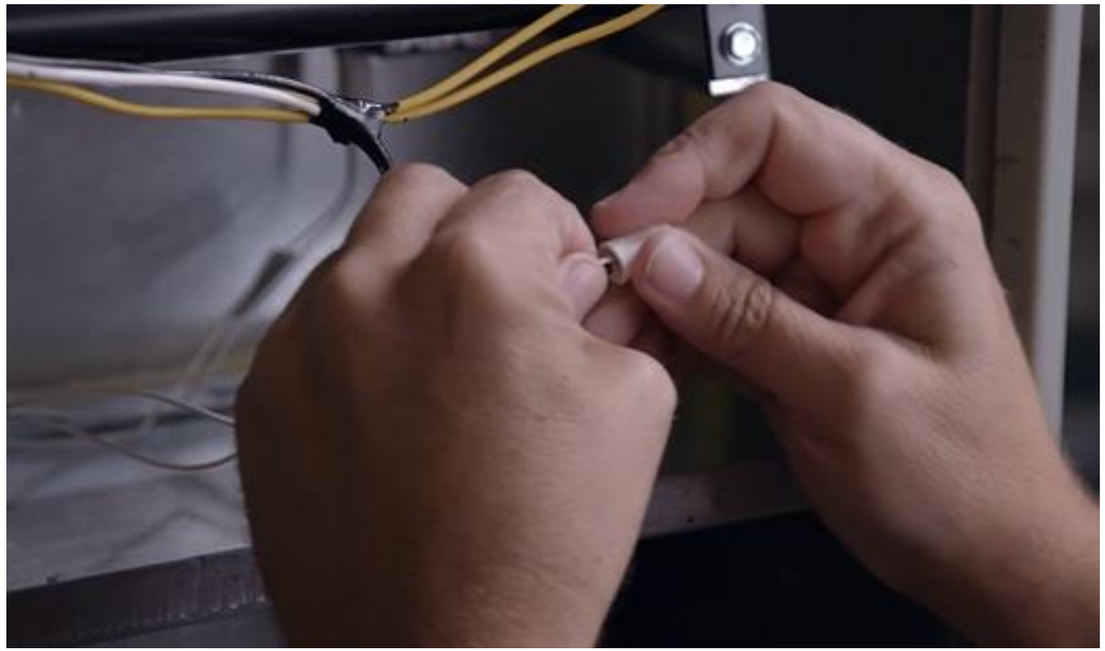
2 Open package and screw ignitor into bracket using provided screws. In some cases, you may need to re-use the existing bracket.

Installation – Step 3 – HotRod

3 Attach HotRod ignitor to furnace using existing screws, and make sure the new ignitor is in the same location as the previous.

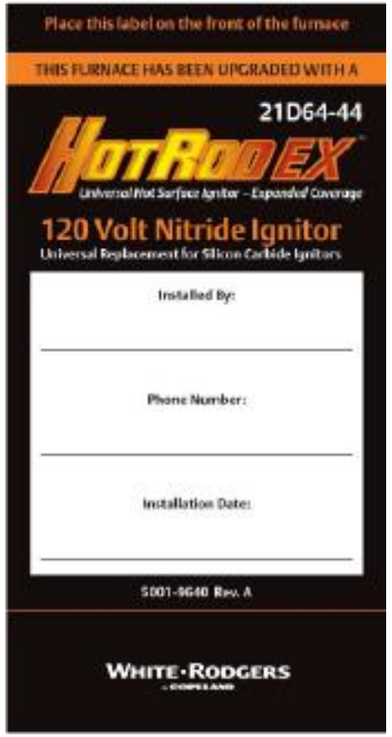
Installation – Step 4 – HotRod

4 Strip furnace wires and wire nut to ignitor, matching one wire from the ignitor to one wire from the furnace.



Installation – Step 5 – HotRod

5 Add information to sticker found in HotRod package. Attach sticker to front of furnace. Connect gas and power and test operation.



Our commitment to you

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

COPELAND

Thank you.