



**safe T element**<sup>™</sup>  
*helps prevent cooking fires before they start*

# Installation Instructions

**For PTI STEZA C (2x2 Burner Configuration) &  
PTI STEZB C (3x1 Burner Configuration)**

Revision E

# Table of Contents

<b>1. PREPARATION.....</b>	<b>3</b>
1.1 General Safety Instructions.....	3
1.2 Before You Start.....	3
1.3 Tools & Equipment Needed.....	4
1.4 Safe-T-Element™ Components.....	4
1.5 Optional Components.....	5
1.6 Wiring Diagram.....	7
<b>2. INSTALLATION.....</b>	<b>8</b>
2.1 Preparing For Installation.....	8
2.2 Installing Safe-T-Element™ Plates.....	9
2.3 Mounting the Safe-T-Element™ Controller.....	11
2.4 Connecting Power to the Safe-T-Element™ Controller.....	12
2.5 Connecting the Elements to the Safe-T-Element™ Controller.....	13
2.6 Connecting the Temperature Sensors to the Safe-T-Element™ Controller...	14
2.7 Reassembly.....	16
2.8 Testing.....	17
<b>3. FRONT-MOUNTED CONTROL SWITCH STOVES.....</b>	<b>18</b>
3.1 Preparation for Installation.....	18
3.2 Mounting the Safe-T-Element™ Controller.....	18
3.3 Connecting Power to the Safe-T-Element™ Controller.....	19
3.4 Connecting the Elements to the Safe-T-Element™ Controller.....	19
<b>4. INSTALLATION INSTRUCTIONS FOR PTI STEYA-WHIRPOOL ADAPTER.....</b>	<b>22</b>
4.1 Tools & Equipment Needed.....	22
4.2 PTI STEYA Components.....	22
4.3 Installation.....	22
4.3a Preparing for Installation.....	22
4.3b Installing the Adapter.....	23
<b>5. INSTALLATION INSTRUCTIONS FOR PTI STEYC-GE JBP35 SERIES STOVE ADAPTER.....</b>	<b>25</b>
<b>6. TROUBLESHOOTING.....</b>	<b>26</b>
6.1 Common Questions.....	26
6.2 Getting Help.....	26
<b>7. Safe-T-Element Controller Wiring Diagram.....</b>	<b>27</b>

## PREPARATION

### 1.1 General Safety Instructions

#### Safety First!



Have your Safe-T-element™ installed by a qualified service technician. Follow the installation and servicing instructions provided with this product.



Read this manual carefully before installing the Safe-T-element™ to reduce the risk of electric shock, fire, burn hazard or other injury.



Extreme care should be used because of the high voltages used by the range and this product. Disconnect the power to the range before removing the rear cover.



Do not repair or replace any part of this product unless it is specifically recommended in this manual.



A qualified service technician should conduct all other service.

Save these instructions for future reference. If you are installing this unit for someone else, give this manual to him/her for future reference.

### 1.2 Before You Start



**WARNING: Shock hazard present due to high voltages.**

**Disconnect power to range before installing this product. Ensure that the power to the range remains OFF during the entire duration of the Safe-T-element™ installation.**



Ensure that the burners are cool before attempting to install this product.

## 1.3 Tools and Equipment Needed

Power Drill  
 3/16" Drill bit  
 #1 Phillips screwdriver  
 #2 Phillips screwdriver  
 Needle nose pliers

## 1.4 Safe-T-element™ Components

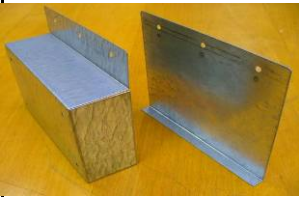

In addition to this manual, your Safe-T-element™ kit includes the following:

Quantity 2+2 Configuration PTI STEZA C	Quantity 3+1 Configuration PTI STEZB C	Part Number	Description
2	1	PTI STE28 D	Large plate
2	3	PTI STE29 D	Small plate
1	1	PTI STE18 -	Safe-T-Element™ Controller
4	4	PTI STEAY -	Controller mounting supports
4	2	PTI STE06 D	Large plate bracket
4	6	PTI STE07 D	Small plate bracket
24	24	PTI STEBA -	M3 x 4mm Screw
4	4	PTI STEBB -	M3 x 12mm Screw
2	2	PTI STEAX -	Nylon cable clip
4	4	PTI STEAW -	Nylon cable tie
2	1	PTI STE14 E	Thermocouple assembly for large plate
2	3	PTI STE15 E	Thermocouple assembly for small plate
4	4	PTI STE09 D	Thermocouple bracket
4	4	PTI STE10 C	Thermocouple wire support (M-Bracket)
4	4	PTI STE11 B	Thermocouple wire clip (S-Bracket)

Quantity 2+2 Configuration PTI STEZA C	Quantity 3+1 Configuration PTI STEZB C	Part Number	Description
1	1	PTI STE12 D	Wire set includes: A. Power wire set Includes:1 Black 1 White B. Relay wire set Includes:1 Blue 1 Red 1 Yellow 1 Brown C. Extension wire set Includes:1 Blue 1 Red 1 Yellow 1 Brown
1	1	PTI STE49 -	Care and Use Guide
1	1	PTI STE21 A	Warning Sheet
1	1	PTI STE27 A	Drill Template
2	2	PTI STE17 A	0.250" Tab, #10 Ring Terminal Adapter

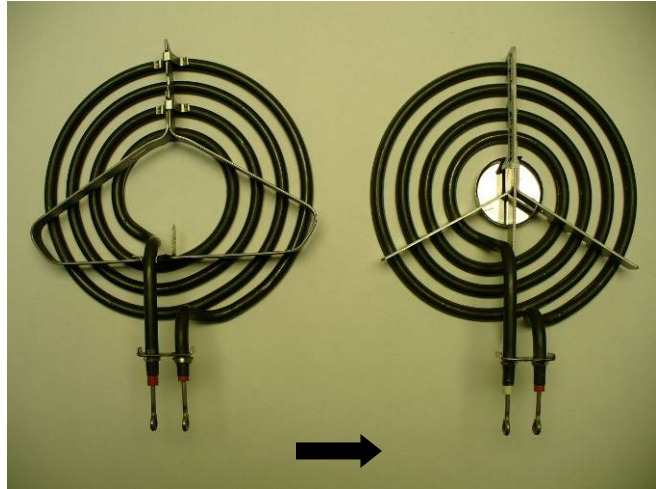
### 1.5 Optional Components:

Some stove may require an adapter kit for the installation of the Safe-T-Element™ Controller. The following is a partial list of adapter kits available. Please contact Pioneering Technology if unsure whether an adapter kit is required for your stove.

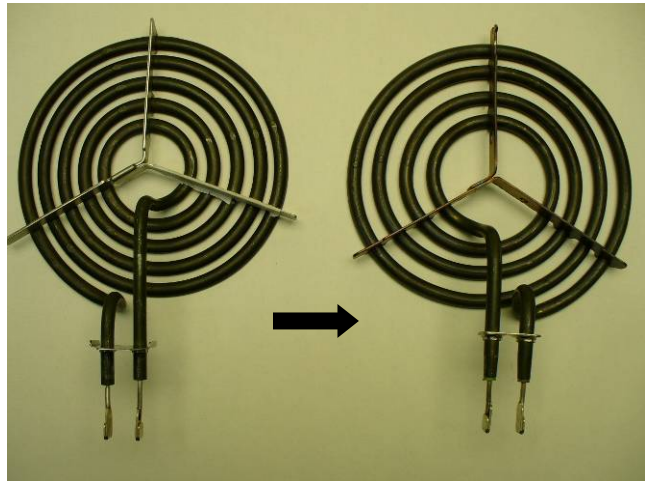
Adapter Model No.	Description	Parts Included in Kit
PTI STEYA 	Adapter for Whirlpool WERE3000 series stoves	<ul style="list-style-type: none"> <li>External mounting bracket</li> <li>3 Screws</li> </ul>
PTI STEYC 	Adapter for GE JBP35 series stoves	<ul style="list-style-type: none"> <li>Mounting bracket</li> <li>Screw</li> </ul>

Ensure that the Safe-T-Element™ is compatible with the stove. Some stove models may require the replacement of the burners or the use of an adapter kit.

Check the construction of the burners. The Safe-T-Element™ plates cannot be mounted to burners with a 'delta' or triangular spider. The burners will need to be replaced with compatible burners with the 3 legged spider.



The Safe-T-Element™ plates are not compatible with some GE and Hotpoint **small 6"** burners with 5 turns of the element coil. They must be replaced with compatible 4-turn elements.

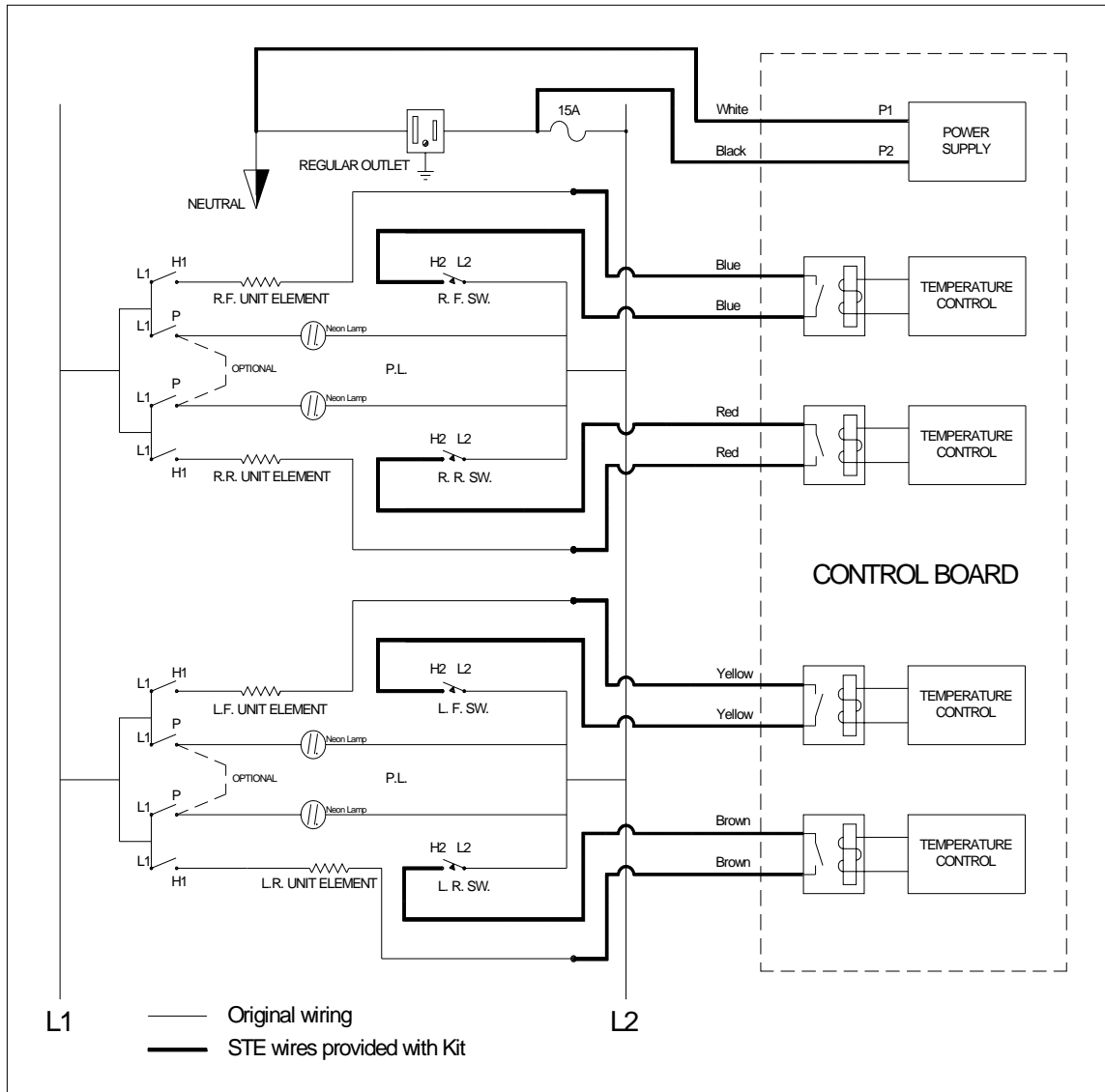


Certain models like the Whirlpool WERE3000 series of stoves do not have enough space in the rear compartment for the installation of the Safe-T-Element™ controller. In this case an adapter kit available from Pioneering Technology must be used for mounting of the controller.

## **IMPORTANT**

**This document describes a typical installation. There are slight variations from model to model which must be accommodated. Please contact Pioneering Technology for assistance**

## 1.6 Wiring Diagram



## 2. INSTALLATION

### 2.1 Preparing For Installation

1. Before disconnecting anything test surface elements and oven to ensure they are functional. To prevent injury do not allow elements to get hot. Turn elements off when slightly warm.

### 2. Disconnect power to stove.



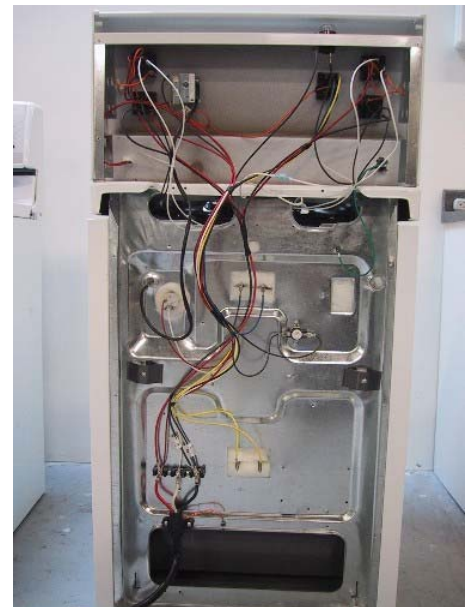
**WARNING:** Failure to disconnect power will result in a hazardous situation.

3. Remove screws securing the rear cover of the stove.  
**For Front-mounted Control Switch Stoves, please refer to Section: 3.1 on Page: 18**
4. Inspect all existing wiring for damage or excessive grease buildup.



**WARNING:** Do not proceed with the installation if there is any damage to wiring or excessive grease buildup.

To avoid risk of personal injury or property damage, have the stove serviced before proceeding with the installation if either of these conditions is found.



## 2.2 Installing Safe-T-element™ Plates

### 1. IMPORTANT!

Verify that the power supply to the stove is disconnected and the burner elements are cool.

2. Remove burner element from its socket.



3. Remove its center cover piece.



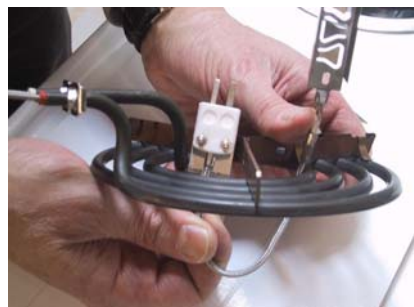
4. Put the thermocouple wire through the gap in the element as shown, carefully, holding it by the wire only.

### CAUTION!

**HOLD & BEND THE THERMOCOUPLE WIRE ONLY. DO NOT HOLD OR BEND THE WIRE WITH THE THERMOCOUPLE BRACKET AS IT MAY BREAK THE THERMOCOUPLE JUNCTION ON THE BRACKET.**



5. Put the other end through the next gap as shown carefully, holding it by the wire only.



6. Hold the thermocouple wire bracket in place.  
Where possible, the bracket should be mounted behind the existing element grounding bracket. Where this is not possible, the temperature sensor bracket may be mounted in front of the element grounding bracket provided the following requirements are met:

- The temperature sensor bracket can be mounted in a position where it can hook onto the element grounding ground bracket to prevent movement; and,
- A minimum spacing of  $\frac{1}{2}$  inch is left between the temperature sensor bracket and the exposed terminals of the element.

**NOTE:**

The kit includes 2 different size sensors. Ensure you mount the correct one for the element.

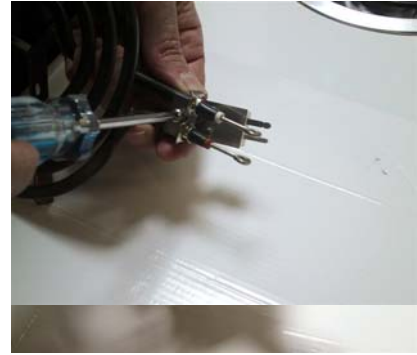
7. Secure the temperature sensor bracket to the element.

8. Place the Safe-T-element™ plate top-side down. Place cook element top-side down on the Safe-T-element™ plate. The electrical connections for the element should be placed opposite the notch in the plate.

9. Loosely secure the Safe-T-element™ plate to the burner element using thermocouple assembly bracket and 2 screws (PTI STEBA) using the #1 Phillips screw driver

10. Use 2 additional brackets to secure the plate to the element.  
Tighten the 6 screws until the bracket is snug against the plate. Be careful not to over tighten the screws.

11. Repeat the above steps for the other 3 burner elements.



## 2.3 Mounting the Controller :

1. Place the adhesive back drill template for the Controller in the lowest possible location INSIDE the stove rear compartment. The photo shows a typical mounting location

**For Front-mounted Control Switch Stoves, please refer to Section: 3.2 on Page: 18**



### WARNING

The Controller location must meet the following requirements:

- It must be placed as low as possible in the rear compartment of the range in order to minimize exposure to heat.
- In no case should the template be placed directly above the terminals for the oven element as heat escaping from the opening may cause the Controller to overheat.
- A minimum 1 inch gap is maintained between the Controller and any other range component such as terminal blocks, oven components, etc.
- The controller and all wires are completely enclosed in the rear compartment.
- **For Stoves such as the Whirlpool Model # WERE3000 which have a shallow rear compartment will require an adaptor kit to accommodate the Controller . This adaptor kit will allow the mounting of the Controller outside the rear panel. Please contact Pioneering Technology if one is required for your stove). Please refer to Section: 4 on page:23 for more details on in stallion of this kit.**

**A minimum of ¼ inch is maintained between the tallest component on the Controller and the rear cover.**

2. Drill 4 holes using a 3/16” drill bit.



### WARNING

Be careful to drill through the rear panel only. Drilling deeper than ½ inch will cause damage to the oven wall.

3. Remove the template. Insert the Controller mounting supports as shown. (Insert wide end of support into hole)

Document Number *PTI STE50 E*



4. Secure the Controller to the supports as shown.  
Ensure each support is fully inserted.

**WARNING**

Apply pressure only from the left and right edges. Pressure to the middle of the board will cause it to flex and may damage the circuit.



## 2.4 Connecting Power to the Controller

**WARNING**

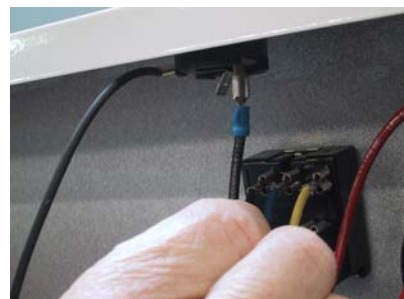
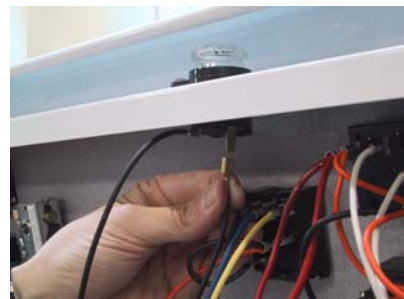
The controller is designed to operate on 120VAC only, DO NOT apply or connect it to 220VAC!

**For Front-mounted Control Switch Stoves,  
please refer to Section: 3.3 on Page: 19**

1. Connect the BLACK wire to terminal P1 on the STE Controller.
2. Locate the fuse for the 120VAC outlet on the range.  
Disconnect the wire which goes to the 120VAC outlet.

**NOTE:** For stoves without a fuse or where the fuse is not accessible, the Black wire from the STE controller may be connected directly to the black wire from the power cord.  
If necessary use ring terminal adapter provided.

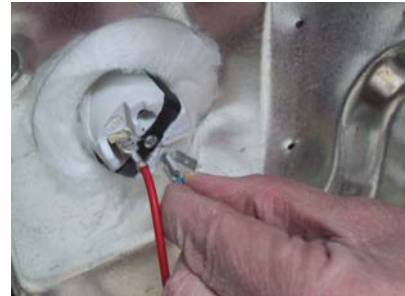
3. Connect the BLACK wire from the STE Controller to the fuse holder.



4. Re-connect the wire from the 120V outlet to the piggy-back connection on the STE wire.
5. Connect the WHITE wire to the P2 terminal on the Controller.

**NOTE:** For stoves without an oven light or where the oven light is not accessible, the White wire from the STE controller may be connected directly to the white wire from the power cord.  
If necessary use ring terminal adapter provided.

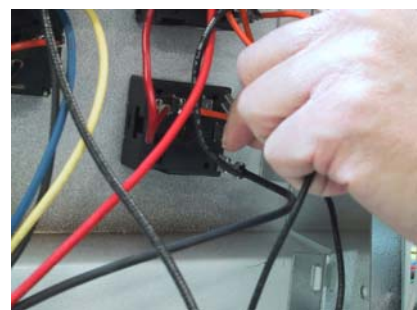
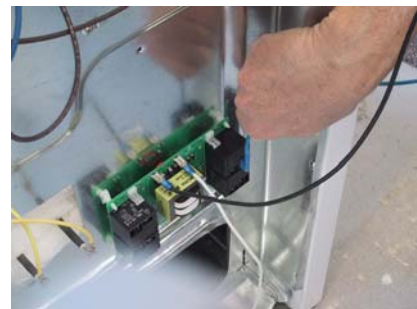
6. Remove the white wire to the oven light. Connect the Safe-T-Element wire to the oven light.
7. Re-connect the wire to the light.



## 2.5 Connecting the Elements to the Controller

**For Front-mounted Control Switch Stoves,  
please refer to Section: 3.4 on Page: 19**

1. Connect the 90° connector on the BLUE relay wire to the NO terminal on the **upper-right relay** of the STE Controller (when looking at the STE Controller from the back)
2. Locate the temperature control dial for the **front-left element**. (when looking at the electric range from the front). Disconnect the wire going from the dial to the cook element.

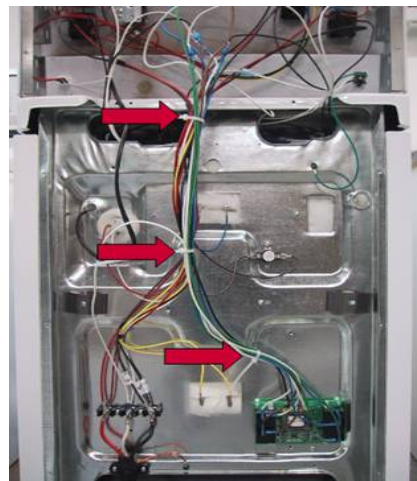
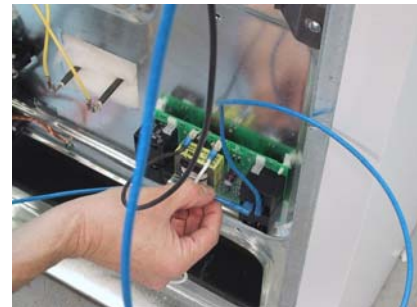
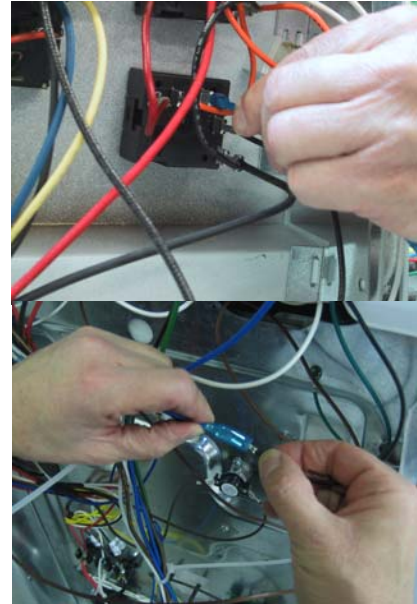


3. Connect the other end of the BLUE relay wire to the temperature control dial.
4. Connect the BLUE relay extension wire provided to the wire coming from the **front-left** element



**To prevent possible fire or electric shock ensure that the blue insulator completely covers the connection.**

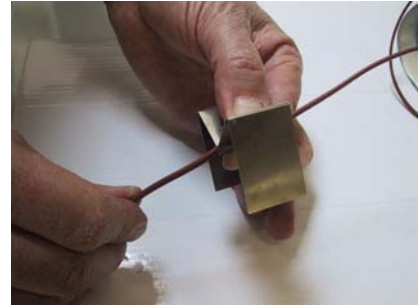
5. Connect the BLUE relay extension wire to the COM terminal of the **upper right** relay of the STE Controller.
6. Using the RED wire repeat steps 1 through 5 to connect the **rear-left element** (looking at the range from the front) to the **lower-right** relay of the STE Controller.
7. Using the BROWN wire repeat steps 1 through 5 to connect the **rear-right** element (looking at the range from the front) to the **lower-left** relay of the STE Controller.
8. Using the YELLOW wire repeat steps 1 through 5 to connect the **front-right element** (looking at the range from the front) to the **upper-left** relay of the STE Controller.
9. Secure all the wires using cable ties.



## 2.6 Connecting the Temperature Sensors to the Controller

1. Hold the M-Bracket firmly with both hands and pull outward slightly. This will make installation of the wire easier.  
This bracket is used to help support the thermocouple bracket. It may not be necessary on the rear elements or where existing supports in the stove may be used.

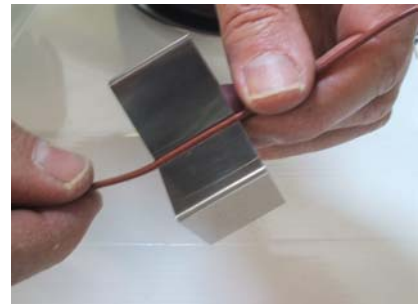
2. Place the M-Bracket approximately 4 inches from the end of the thermocouple extension wire. Press one end of the bracket onto the thermocouple wire.



3. While holding that end press the other side of the bracket onto the wire.



4. Press the center portion of the wire in until it is completely in the slot on the M-bracket.

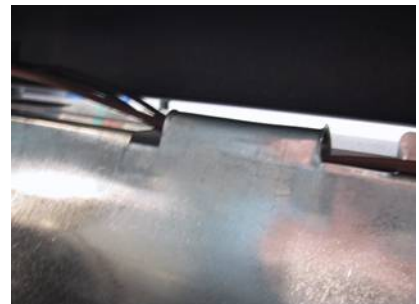


5. Place the thermocouple wire under the range top leaving approximately 6 inches protruding from the front-left opening.



6. Secure the thermocouple wires under the cook top in the same manner as the existing wires to the elements.

If stove does not have channels as shown or similar supports then hang the thermocouple wires of the front elements from the stove element wires using the S-clips provided.



7. Re-install the drip pan as shown.



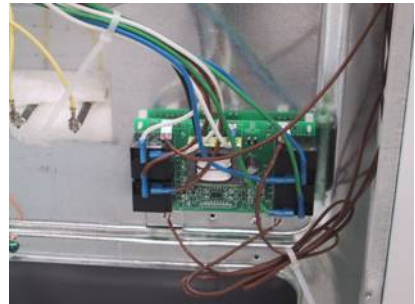
8. Connect the thermocouple wire to the thermocouple on the plate.



9. Re-install the element.



10. Connect the thermocouple to the upper-right terminal of the STE Controller (i.e. same channel as the relay wires for that element)



11. Repeat for the 3 other elements.

## 2.7 Reassembly

1. Tie the 4 thermocouple wires together near the STE Controller using one of the cable ties provided.

2. Remove a screw on the rear-right side (or left side – depending on which side the controller was mounted) on the range.



3. Secure the thermocouple wires using a cable clamp and the screw.



**WARNING** Be careful not to damage any of the wires during reassembly. Any wire damaged during the installation must be replaced prior to applying power to the range.



5. Re-connect the power cord.

## 2.8 Testing

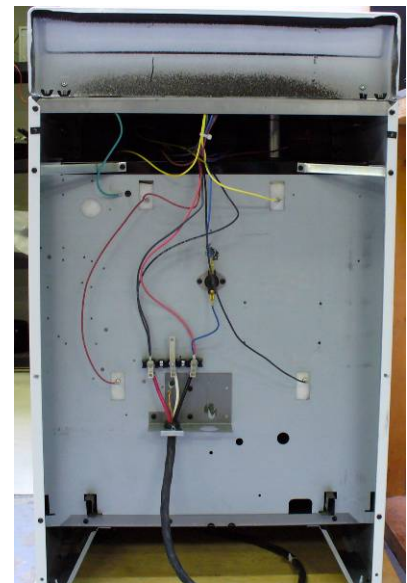
1. Place your hand on the front-right plate and turn on the element. Ensure that the light for that element lights up.
2. Feel for heat from the plate. **Be extremely careful during this test as the element may heat up very quickly.** Move your hand away at the first sign of heat.
3. Turn off the element. Repeat for other elements.
4. Installation is complete.

### 3. Front-Mounted Control Switch Stoves



#### 3.1 Preparation for Installation

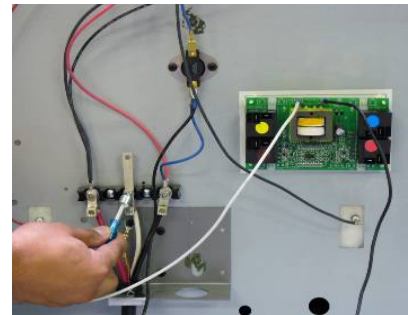
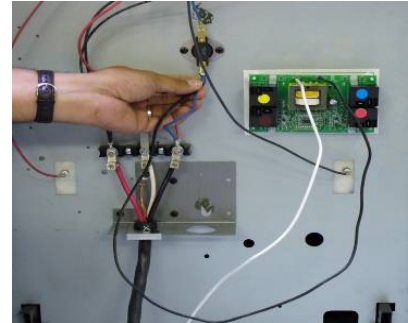
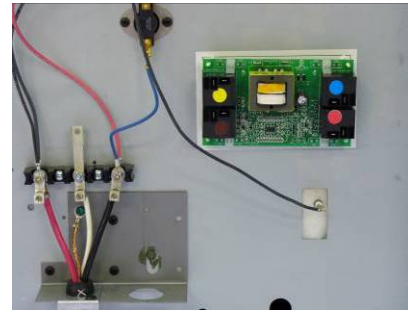
Remove screws securing the rear cover of the stove.



#### 3.2 Mounting the Controller

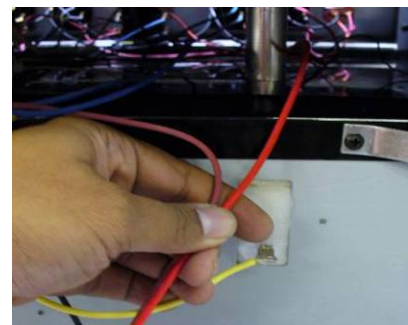


### 3.3 Connecting Power to the Controller



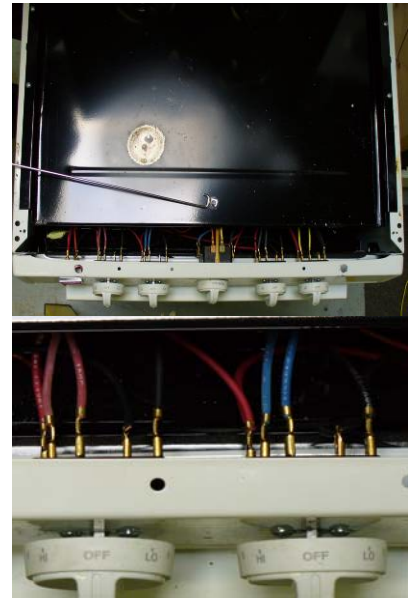
### 3.4 Connecting the elements to the Controller

1. Connect the 90° connector on the RED relay wire to the NO terminal on the **lower-right** relay of the STE Controller (when looking at the STE controller from the back)
2. Route the wire through the space above the oven and over to the front mounted temperature control dials.



3. Remove the top panel to access the front mounted temperature control dials.

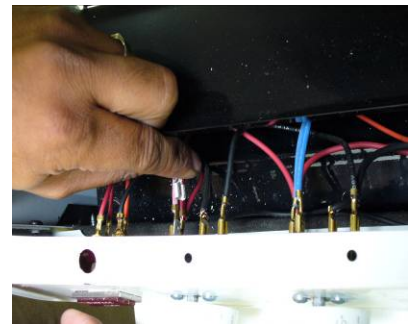
4. . Locate the temperature control dial for the **rear-left element** (when looking at the range from the front)



5. Disconnect the wire going from the dial to the cook Element.



6. . Connect the other end of the RED relay wire to the temperature control dial.



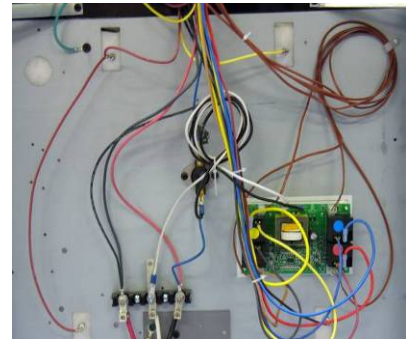
7. . Connect the RED relay extension wire provided to the wire coming from the **rear-left element**.



**WARNING**

To prevent possible fire or electric shock ensure that the blue insulator completely covers the connection.

8. Connect the RED relay extension wire to the COM terminal of the **lower-right relay** of the STE Controller.
9. Using the BLUE wire repeat steps 1 through 5 to connect the **front-left element** (when looking at the range from the front) to the **upper-right relay** of the STE Controller.
10. Using the BROWN wire repeat steps 1 through 5 to connect the **rear-right element** (when looking at the range from the front) to the **lower-left relay** of the STE Controller.
11. Using the YELLOW wire repeat steps 1 through 5 to connect the **front-right element** (when looking at the range from the front) to the **upper-left relay** of the STE Controller.
12. Secure all the wires using cable ties.



#### 4. Installation Instructions for PTI STEYA Control Board Adapter

Stoves such as the Whirlpool Model # WERE3000 which have a shallow rear compartment will require an adapter kit to accommodate the Controller . This adapter kit will allow the mounting of the Controller outside the rear panel. Please contact Pioneering Technology if one is required for your stove).

##### 4.1 Tools and Equipment Needed

Aviation snips  
Needle nose pliers  
Power drill  
1/8" drill bit  
Metal punch

##### 4.2 PTI STEYA Components

Your PTI STEYA Whirlpool Adapter kit includes the following:

Quantity	Part Number	Description
1	PTI STEYA -	Controller mounting bracket + Cover
4	PTI STEAX -	# 8 x 1/2" metal self-tapping screw
1	PTI STEBC -	Nylon cable clip
2	PTI STEAW -	Nylon cable tie

#### 4.3 Installation

##### 4.3a Preparing for Installation

1. Disconnect power to stove.

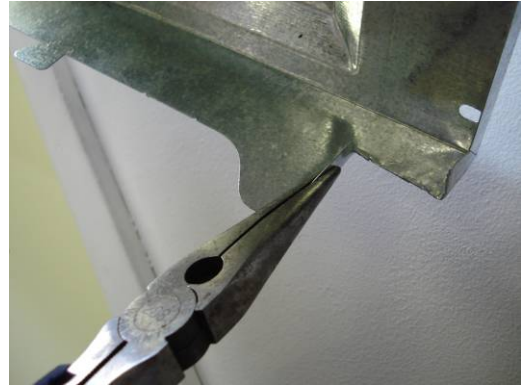


**WARNING: Failure to disconnect power will result in a hazardous situation.**

2. After removing lower cover cut a notch out of the lower-right corner of the cover approximately 1¼" wide by 1¼" high.

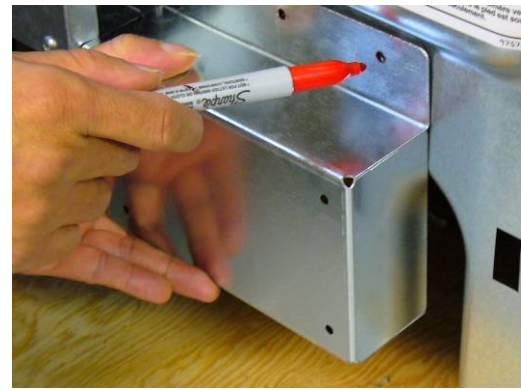


3. Bend approximately  $\frac{1}{4}$ " of the cover inward at the top of the cut to prevent the sharp edge of the cover from coming in contact with the wires.



#### 4.3b Installing the Adapter

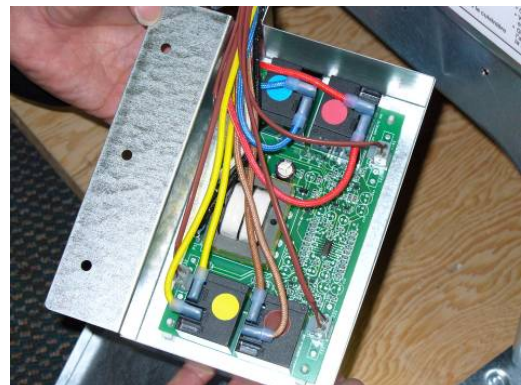
1. Hold the bracket in place as shown in the picture and mark the three holes using a pencil or marker.



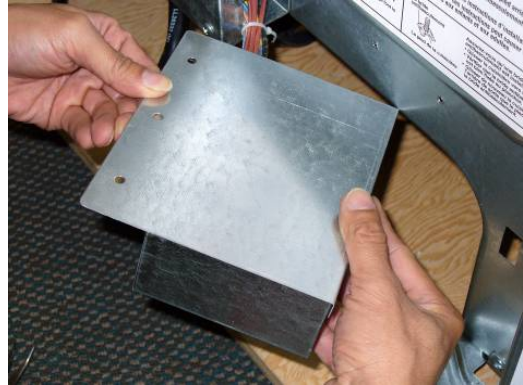
2. Use a metal punch to mark the center of the holes and drill three  $\frac{1}{8}$ " holes.



3. Mount the Controller on the bracket bringing all the wires out the opening. Use a cable tie to secure the wires.



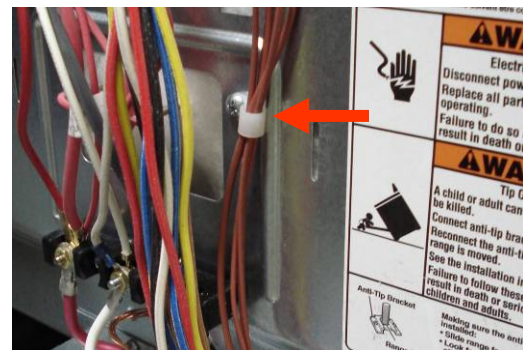
4. Place cover on the back of the bracket.



5. Mount the Adapter using 3 screws provided.



6. Use the cable clamp and screw provided to secure the thermocouple wires away from the power terminals. Use an existing hole in the stove if possible.



6. After completing the rest of the Safe-T-element™ installation reinstall the lower rear cover.



## 5. Installation Instructions for PTI STEYC-GE Model JPB35 series Safe-T-Element™ Controller Adapter

Some GE stoves like the JPB35 series have a very shallow rear compartment will require an adapter kit to accommodate the STE Controller . This adapter kit will allow the mounting of the Controller behind the rear panel. Please contact Pioneering Technology if one is required for your stove.

### Installation

1. Disconnect power to stove.



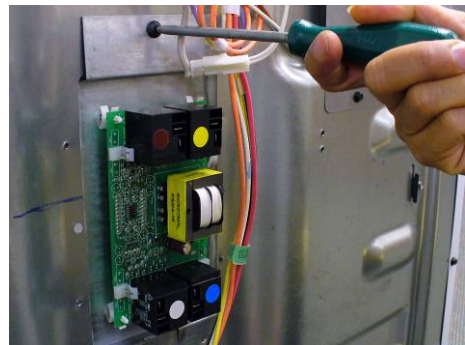
**WARNING: Failure to disconnect power will result in a hazardous situation.**

2. Remove stove rear panel.

3. Mount the Controller on the adapter plate, using the PCB supports.

4. Secure the bottom edge of the adapter plate and use the screw provided to hold the top.

5. Refer to section 2.4 to 2.6 for wiring of the power wires, relay wires and the thermocouple wires to the STE Controller.



## 6. TROUBLESHOOTING

### 6.1 Common Questions

PROBLEM	POSSIBLE CAUSE/SOLUTION
<b>Stove does not operate</b>	Cord not plugged into wall. Ensure power cord is plugged into outlet.
	Fuse has blown or circuit breaker has tripped. Check range fuses and breaker at panel.  <b>WARNING:</b> Do not reset breaker/replace fuse until cause is identified and corrected. Failure to do so may result in injury or damage.
<b>One element does not operate</b>	Thermocouple wire connection broken. Ensure thermocouple wire connected. Check thermocouple wire for damage.
<b>One or more of the elements get too hot (up to 450°C)</b>	It is normal to have hot spots on the plate if the Safe-T-Element™ is operated without a pot or pan. The Safe-T-Element™ is designed to keep the <i>average</i> temperature of the plate at approximately 350°C. If the element is operated without a pot or pan then there may be some hot spots due to irregular heating by the element below. This is normal provided that the highest temperature does not exceed 450°C.
<b>One or more of the elements get too hot (greater than 450°C)</b>	Thermocouple wire has a short circuit. Check wire for damage. Replace if necessary.
	Safe-T-element™ is not connected properly. Check wiring and ensure thermocouple and relay wires are connected correctly.
	Controller defective. Replace controller and test again.

### 6.2 Getting Help

If you require assistance with the installation of **Safe-T-Element™** please call **Pioneering Technology Inc.** at **toll free: 1-800-433-6026 or 905-712-2061** between the hours of 9:00am and 5:00pm EST or email: **service@pioneeringtech.com**.

