KM Relay Replacement

1. Unplug the kiln from the wall receptacle.
2. Remove the 6 (or 4) sheet metal screws attaching the control box to the kiln body.
3. Swing the control box open to expose the internal wiring.
4. Remove the wires from the terminal strip by pulling gently. You should remove the white, numbered element feeder wires and the two thermocouple wires.
5. Remove the control box from the kiln by lifting the box upward off the hinges.
6. Cradle the control box upside down on a soft flat surface. Be careful not to break off the touchpad switch if present on your model. If necessary elevate one end of the control box with a pillow or rolled up towel to keep the switch from hitting any hard surfaces.
7. Remove the sheet metal screws that hold the fiberglass lined heat baffle in place. Remove the heat baffle and swing it to one side taking care not to damage the attached wiring.

8. Inspect the screws holding the relays in place. If sheet metal screws are used, proceed to step 11. If machine screws and nuts are used, proceed to step 9.
9. Remove the power cord wiring from the terminal block. It may be necessary to loosen the power cord strain relief to gain access to the relay chassis. Remove the power cord from the control box.
10. Remove the two machine screws and nuts holding the relay chassis in place.
11. Identify and tag the wiring to the faulty relay. Remove the wires to the relay by loosening and removing the push on connectors.
12. Remove the two screws holding the relay in place. It is only necessary to lift up the chassis far enough to gain access to the nuts securing the machine screws in place if machine screws are used. If sheet metal screws are used, simply remove them and the relay. Do not loosen or remove the relay chassis.
13. Remove the faulty relay.
14. Install the new relay by reversing the above directions.

KilnMaster Relay Replacement

FOR MODELS: KM1027 / KM1227 1-PHASE 208/240 VOLT

This relay replacement kit is intended to replace three relays and all the necessary relay wiring in your kiln. It is absolutely necessary to install the entire kit including all relays and wiring for proper performance. Do not re-use any of the original black wiring.

Your new relay replacement kit consists of the following items:

1. Three relays with all of the necessary harness and control wires attached
2. One relay adapter plate.

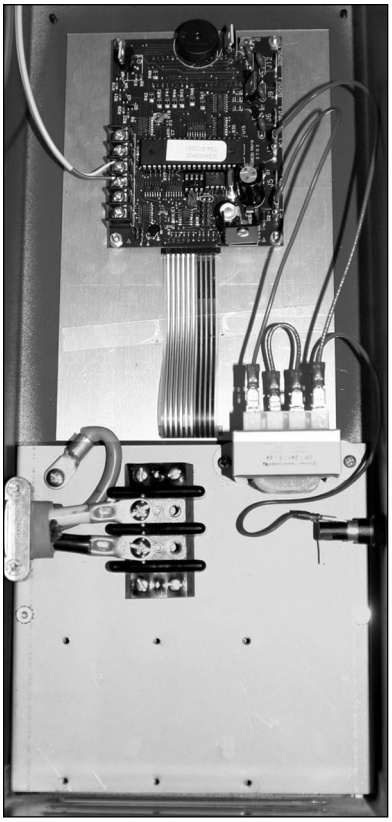
The tool necessary to install the relay replacement kit is a #2 Phillips screwdriver

STEP-BY-STEP INSTRUCTIONS:

Before beginning the actual replacement, it is strongly recommended to read through these instructions to familiarize yourself with the following procedures.

RELAY AND WIRING REMOVAL

PHOTO #1



1. Unplug your kiln. Remove your control box from the kiln. Place the control box, face down on a flat surface. Protect the touchpad of your control box with a soft cloth or towel.
2. Remove the fiberglass lined heat baffle by removing the six sheet metal screws holding it in place. Carefully lift the heat baffle out of the control box, taking care not to stretch the attached wires on the underside.
3. Using the Phillips screwdriver, remove the six black wires attached to the heat baffle terminal strip. Save your screws. If you want to get the heat baffle entirely out of the way, remove the remaining red and yellow thermocouple wires.
4. Begin removal of the three old relays from the control box by removing the six sheet metal screws holding the relays in place. Save your screws. ALL wires, both black and red, connected to the relays will be removed. With the relays loosened, remove the two large screws on the terminal block holding the black relay wiring in place. The wires at this point should be crimped into two large silver connectors that also will contain one red wire each. Follow each red wire and remove the push-on connectors from the fuse holder and the transformer bottom tab. Use a gentle side to side rocking and pulling motion to remove these connectors. Be especially careful when removing the connector from the transformer to avoid damaging it. Remove the red connector from the top-center transformer tab also. Remove the top red wire connected to the circuit board labeled output 2. Remove the double red wire on the circuit board labeled center tap. Carefully pull the relays and all attached wires out of the control box.
5. Refer to photo #1 to ensure that all of the relays and proper wiring have been removed.

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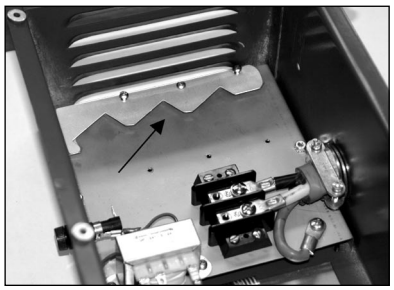
RELAY REPLACEMENT CONTINUED

RELAY INSTALLATION



1. Inspect the orientation of the new relays, wiring and metal adapter plate in its shipping cardboard. The relays will be installed in the control box with the same orientation. Remove the new relays, wiring and metal adapter place from its packing material. Take care to keep the orientation of the new relays as packed to avoid twisting the wires. Locate the metal adapter plate; it will be installed first.
2. Install the metal relay adapter plate in the control box using 3 of the old relay screws. The silver colored spacers on the adapter plate should be placed directly against the metal chassis and screwed down lightly. Use the bottom set of existing holes in the metal chassis for mounting the adapter plate. Refer to photo #2 for the proper orientation of the metal adapter plate.
3. Place the 3 new relays and wiring harnesses in place on the metal chasses. Slide the bottom lip of each relay in its proper place. The plastic lip of the relays should slide underneath the top notched portion of the metal relay adapter plate.
4. Using the remaining 3 old relay screws, fasten down the remaining lips of the new relays using the existing holes in the metal chassis. Lightly tighten down all six screws holding the relays in place. Do not overtighten the screws as they may strip out.
5. Locate the two large silver ring tongue connectors that contain 3 white wires and one small red wire each and fasten to the terminal block securely. It makes no difference if the ring tongue connectors are switched in position on the terminal block. Tighten these screws VERY tight.
6. Locate the two small red wires mentioned above in step #5. Plug one red wire into the vacant bottom tab of the transformer and the other red wire into the fuse holder.
7. Locate the two long red wires attached to the black relays. One wire will have a double end. Plug the wire with the double lead into the circuit board in the position labeled center tap. Plug the loose end of this wire into the top center tab of the transformer. Plug the other single long red wire into the circuit board on the tab labeled output 2.
8. Find the six, white, ten inch long wires attached to the relays. Attach these six wires to the heat baffle terminal strip using the old screws. Attach wire #1 (wires designations are labled on each relay) to position #1 on the terminal strip. Ensure that these connectors are lined up nicely and securely tightened. Refer to the numbered strip on the other side of the heat baffle for proper wire position. Reconnect the red and yellow thermocouple wire if necessary. Make sure the red thermocouple wire is connected to the negative position of the terminal strip. This would be the end (or bottom) connector on the terminal strip. It is labeled "-" on the other side.
9. All of the wiring should be connected now. Check all wiring for any loose ends or unattached connectors. Refer to the photo #3, finished wiring, if necessary to determine proper connection points. Ensure that all wiring is neatly routed around components such as the transformer. Reroute the wiring as necessary to eliminate kinks or pinch

RELAY REPLACEMENT CONTINUED

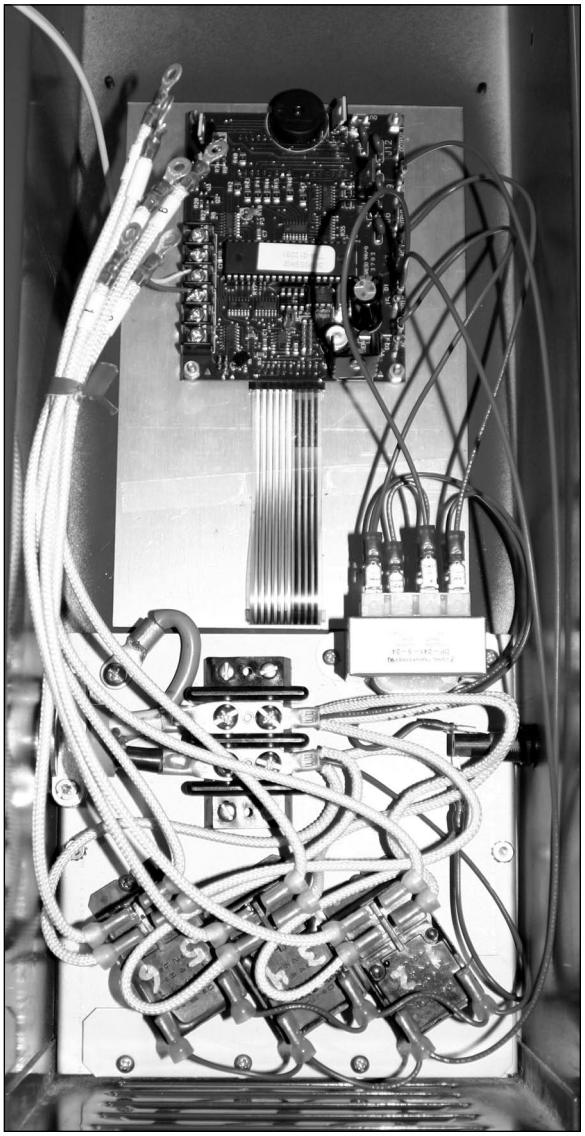
points.

10. Reinstall the fiberglass lined heat baffle in place using the six sheet metal screws. When placing the heat baffle in place, ensure that no wiring is pinched or caught in the control box.
11. Reinstall the control box on your kiln. Ensure that all the white feeder wires are connected, that none of the tabs are loose and that the thermocouple push on connectors are connected to the proper polarity (red is negative "-"). Close the control box and secure using the six sheet metal screws.

Your installation should be complete!

12. An empty test firing of your kiln is strongly recommended before firing any valuable

PHOTO #3



KilnMaster Relay Replacement

FOR MODELS: KM1018 / KM818 1-PHASE 208/240 VOLT

This relay replacement kit is intended to replace two relays and all the necessary relay wiring in your kiln. It is absolutely necessary to install the entire kit including all relays and wiring for proper performance. Do not re-use any of the original black wiring.

Your new relay replacement kit consists of the following items:

1. Two relays with all of the necessary harness and control wires attached
2. One relay adapter plate.

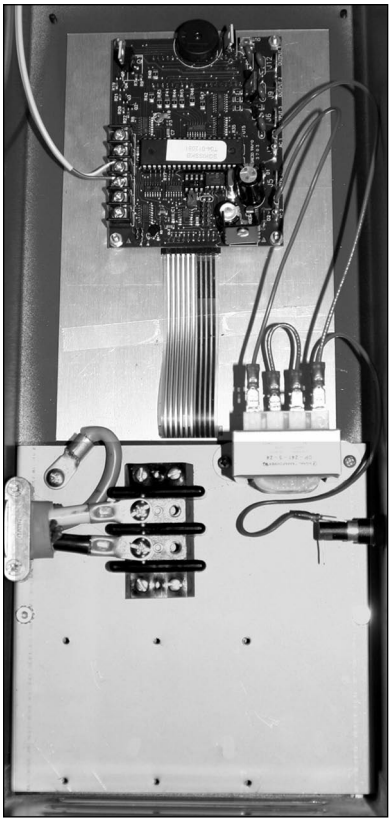
The tool necessary to install the relay replacement kit is a #2 Phillips screwdriver

STEP-BY-STEP INSTRUCTIONS:

Before beginning the actual replacement, it is strongly recommended to read through these instructions to familiarize yourself with the following procedures.

RELAY AND WIRING REMOVAL

PHOTO #1

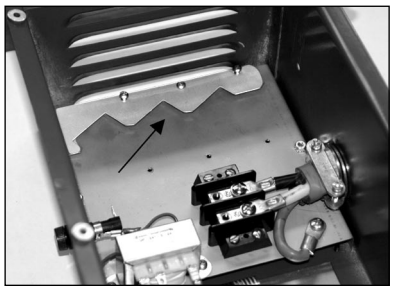


1. Unplug your kiln. Remove your control box from the kiln. Place the control box, face down on a flat surface. Protect the touchpad of your control box with a soft cloth or towel.
2. Remove the fiberglass lined heat baffle by removing the four sheet metal screws holding it in place. Carefully lift the heat baffle out of the control box, taking care not to stretch the attached wires on the underside.
3. Using the Phillips screwdriver, remove the four black wires attached to the heat baffle terminal strip. Save your screws. If you want to get the heat baffle entirely out of the way, remove the remaining red and yellow thermocouple wires.
4. Begin removal of the two old relays from the control box by removing the four sheet metal screws holding the relays in place. Save your screws. ALL wires, both black and red, connected to the relays will be removed. With the relays loosened, remove the two large screws on the terminal block holding the black relay wiring in place. The wires at this point should be crimped into two large silver connectors that also will contain one red wire each. Follow each red wire and remove the push-on connectors from the fuse holder and the transformer bottom tab. Use a gentle side to side rocking and pulling motion to remove these connectors. Be especially careful when removing the connector from the transformer to avoid damaging it. Remove the red connector from the top-center transformer tab also. Remove the top red wire connected to the circuit board labeled output 2. Remove the double red wire on the circuit board labeled center tap. Carefully pull the relays and all attached wires out of the control box.
5. Refer to photo #1 to ensure that all of the relays and proper wiring have been removed.

(continued)

RELAY REPLACEMENT CONTINUED

RELAY INSTALLATION



1. Inspect the orientation of the new relays, wiring and metal adapter plate in its shipping cardboard. The relays will be installed in the control box with the same orientation. Remove the new relays, wiring and metal adapter place from its packing material. Take care to keep the orientation of the new relays as packed to avoid twisting the wires. Locate the metal adapter plate; it will be installed first.
2. Install the metal relay adapter plate in the control box using 2 of the old relay screws. The silver colored spacers on the adapter plate should be placed directly against the metal chassis and screwed down lightly. Use the bottom set of existing holes in the metal chassis for mounting the adapter plate. Refer to photo #2 for the proper orientation of the metal adapter plate.
3. Place the 2 new relays and wiring harnesses in place on the metal chasses. Slide the bottom lip of each relay in its proper place. The plastic lip of the relays should slide underneath the top notched portion of the metal relay adapter plate.
4. Using the remaining 2 old relay screws, fasten down the remaining lips of the new relays using the existing holes in the metal chassis. Lightly tighten down all four screws holding the relays in place. Do not overtighten the screws as they may strip out.
5. Locate the two large silver ring tongue connectors that contain 2 white wires and one small red wire each and fasten to the terminal block securely. It makes no difference if the ring tongue connectors are switched in position on the terminal block. Tighten these screws VERY tight.
6. Locate the two small red wires mentioned above in step #5. Plug one red wire into the vacant bottom tab of the transformer and the other red wire into the fuse holder.
7. Locate the two long red wires attached to the black relays. One wire will have a double end. Plug the wire with the double lead into the circuit board in the position labeled center tap. Plug the loose end of this wire into the top center tab of the transformer. Plug the other single long red wire into the circuit board on the tab labeled output 2.
8. Find the four, white, ten inch long wires attached to the relays that are labeled 1 through 4 on the relays. Attach these four wires to the heat baffle terminal strip using the old screws. Attach wire #1 to position #1 on the terminal strip and so on with #2 thru #4. Ensure that these connectors are lined up nicely and securely tightened. Refer to the numbered strip on the other side of the heat baffle for proper wire position. Reconnect the red and yellow thermocouple wire if necessary. Make sure the red thermocouple wire is connected to the negative position of the terminal strip. This would be the end (or bottom) connector on the terminal strip. It is labeled "-" on the other side.
9. All of the wiring should be connected now. Check all wiring for any loose ends or unattached connectors. Refer to the photo #3, finished wiring, if necessary to determine proper connection points. Ensure that all wiring is neatly routed around components such as the transformer. Reroute the wiring as necessary to eliminate kinks or pinch

RELAY REPLACEMENT CONTINUED

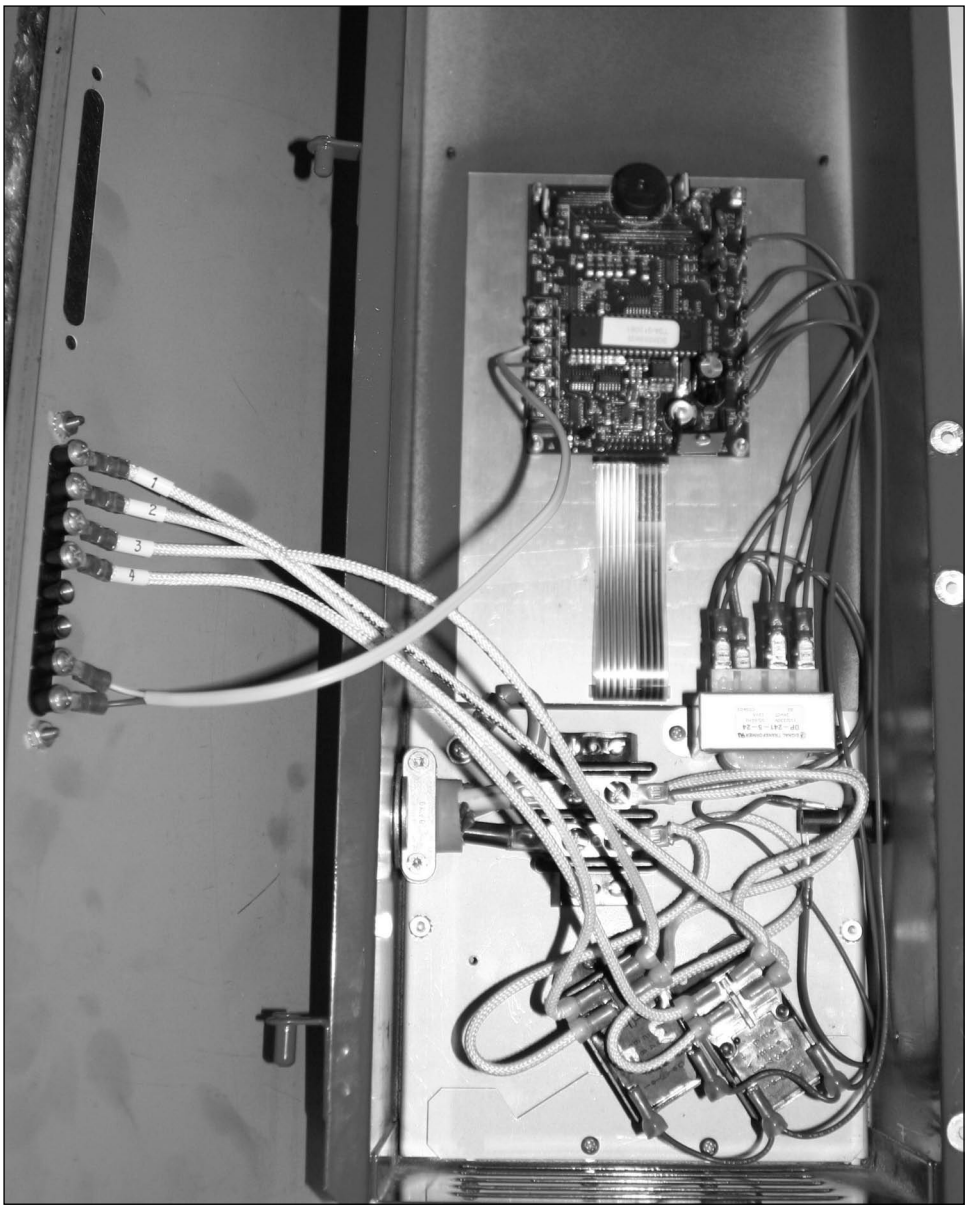
points.

10. Reinstall the fiberglass lined heat baffle in place using the four sheet metal screws. When placing the heat baffle in place, ensure that no wiring is pinched or caught in the control box.
11. Reinstall the control box on your kiln. Ensure that all the white feeder wires are connected, that none of the tabs are loose and that the thermocouple push on connectors are connected to the proper polarity (red is negative "-"). Close the control box and secure using the four sheet metal screws.

Your installation should be complete!

12. An empty test firing of your kiln is strongly recommended before firing any valuable

PHOTO #3



KilnMaster Relay Replacement

FOR MODELS: KM1218-3 3-PHASE 208/240 VOLT

This relay replacement kit is intended to replace three relays and all the necessary relay wiring in your kiln. It is absolutely necessary to install the entire kit including all relays and wiring for proper performance. Do not re-use any of the original black wiring.

Your new relay replacement kit consists of the following items:

1. Three relays with all of the necessary harness and control wires attached
2. Two - three inch long white jumper wires with blue ring tongue connectors.
3. One relay adapter plate.

The the only tool necessary to install the relay replacement kit is a #2 Phillips screwdriver.

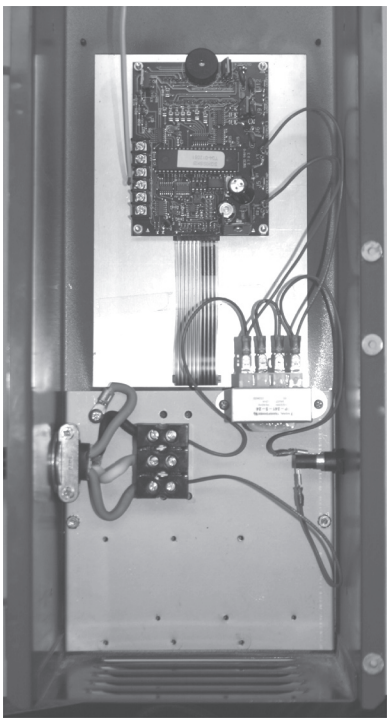
STEP-BY-STEP INSTRUCTIONS:

Before beginning the actual replacement, it is strongly recommended to read through these instructions to familiarize yourself with the following procedures.

RELAY AND WIRING REMOVAL

1. Unplug your kiln. Remove your control box from the kiln. Place the control box, face down on a flat surface. Protect the touchpad of your control box with a soft cloth or towel.
2. Remove the fiberglass lined heat baffle by removing the 4 sheet metal screws holding it in place. Carefully lift the heat baffle out of the control box, taking care not to stretch the attached wires on the underside.
3. Using the Phillips screwdriver, remove the six black wires and the two short jumper wires attached to the heat baffle terminal strip. Please note the location of the two short jumper wires on the terminal strip and the method of attachment. It will be necessary to install the new wiring in an identical manner. Save your screws. If you want to get the heat baffle entirely out of the way, remove the remaining red and yellow thermocouple wires..
4. Begin removal of the three old relays from the control box by removing the six sheet metal screws holding the relays in place. Save your screws. ALL wires, both black and red, connected to the relays will re removed. With the relays loosened, locate the 3-phase terminal block and loosen the screws holding the wires to the relays in place. Note the position of the two red wires connected to the terminal block when you remove the black relay wires. These red wires must be replaced in the same position when installing the new white wires coming from the relays. Use a gentle side to side rocking and pulling motion to remove the following wiring connectors: Remove the red connector from the top-center transformer tab. Remove the top red wire connected to the circuit board labeled output 2. Remove the double red wire on the circuit board labeled center tap. Carefully pull the relays and all attached wires out of the control box.
5. Refer to photo #1 to ensure that all of the relays and proper wiring have been removed.

PHOTO #1



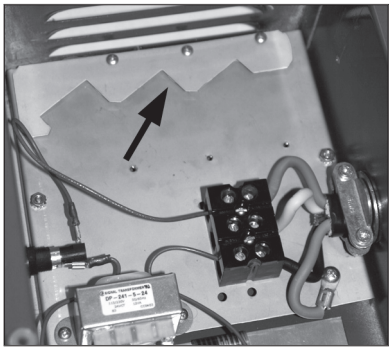
(continued)

RELAY REPLACEMENT CONTINUED

RELAY INSTALLATION

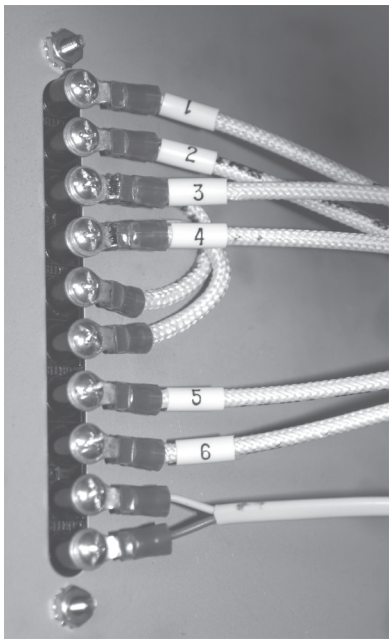
1. Inspect the orientation of the new relays, wiring and metal adapter plate in its shipping cardboard. The relays will be installed in the control box with the same orientation. Remove the new relays, wiring and metal adapter place from its packing material. Take care to keep the orientation of the new relays as packed to avoid twisting the wires. Locate the metal adapter plate; it will be installed first.

PHOTO #2



2. Install the metal relay adapter plate in the control box using 3 of the old relay screws. The silver colored spacers on the adapter plate should be placed directly against the metal chassis and screwed down lightly. Use the bottom set of existing holes in the metal chassis for mounting the adapter plate. Refer to photo #2 for the proper orientation of the metal adapter plate.
3. Place the 3 new relays and wiring harnesses in place on the metal chasses. Slide the bottom lip of each relay in its proper place. The plastic lip of the relays should slide underneath the top notched portion of the metal relay adapter plate.
4. Using the remaining 3 old relay screws, fasten down the remaining lips of the new relays using the existing holes in the metal chassis. Lightly tighten down all six screws holding the relays in place. Do not overtighten the screws as they may strip out.
5. Connecting the new relay wiring to the terminal block is a crucial step that must be accomplished correctly. Each relay should have two white wires with stripped ends connected to it. These wires with the stripped ends must be securely fastened into the black, 3-position terminal block. The relays will be numbered 1-6. Take the two wires numbered 1 and 3 and install them into the terminal block in the right most hole. Ensure that the existing red wire previously noted is installed also. Take the two wires numbered 2 and 5 and install them into the center hole. Take the two wires numbered 4 and 6 and install them into the remaining hole along with the existing old red wire previously noted.

PHOTO #3



6. Locate the two long red wires attached to the black relays. One wire will have a double end. Plug the wire with the double lead into the circuit board in the position labeled center tap. Plug the loose end of this wire into the top center tab of the transformer. Plug the other single long red wire into the circuit board on the tab labeled output 2.
7. Find the two small 3" long white jumper wires in your kit. Attach one jumper wire from position #3 to position #5 on the terminal strip. Attach the other jumper wire from position #4 to position #6 on the terminal strip. Refer to the numbered strip on the other side of the heat baffle for proper wire position.

RELAY REPLACEMENT CONTINUED

Refer to photo #3 for proper positioning of the jumper wires. Locate the six, white, ten inch long wires attached to the relays that are labeled 1 through 6. Attach these six wires to the heat baffle terminal strip using the old screws. Attach wire #1 to position #1 on the terminal strip. Repeat until wire #4 is connected. Attach wire #5 to position #7 on the terminal strip. Attach wire #6 to position #8 on the terminal strip. Refer to photo #3 for proper connections. Ensure that these connectors are lined up nicely and all screws are securely tightened. Reconnect the red and yellow thermocouple wire if necessary. Make sure the red thermocouple wire is connected to the negative position of the terminal strip. This would be the end (or bottom) connector on the terminal strip. It is labeled "-" on the other side.

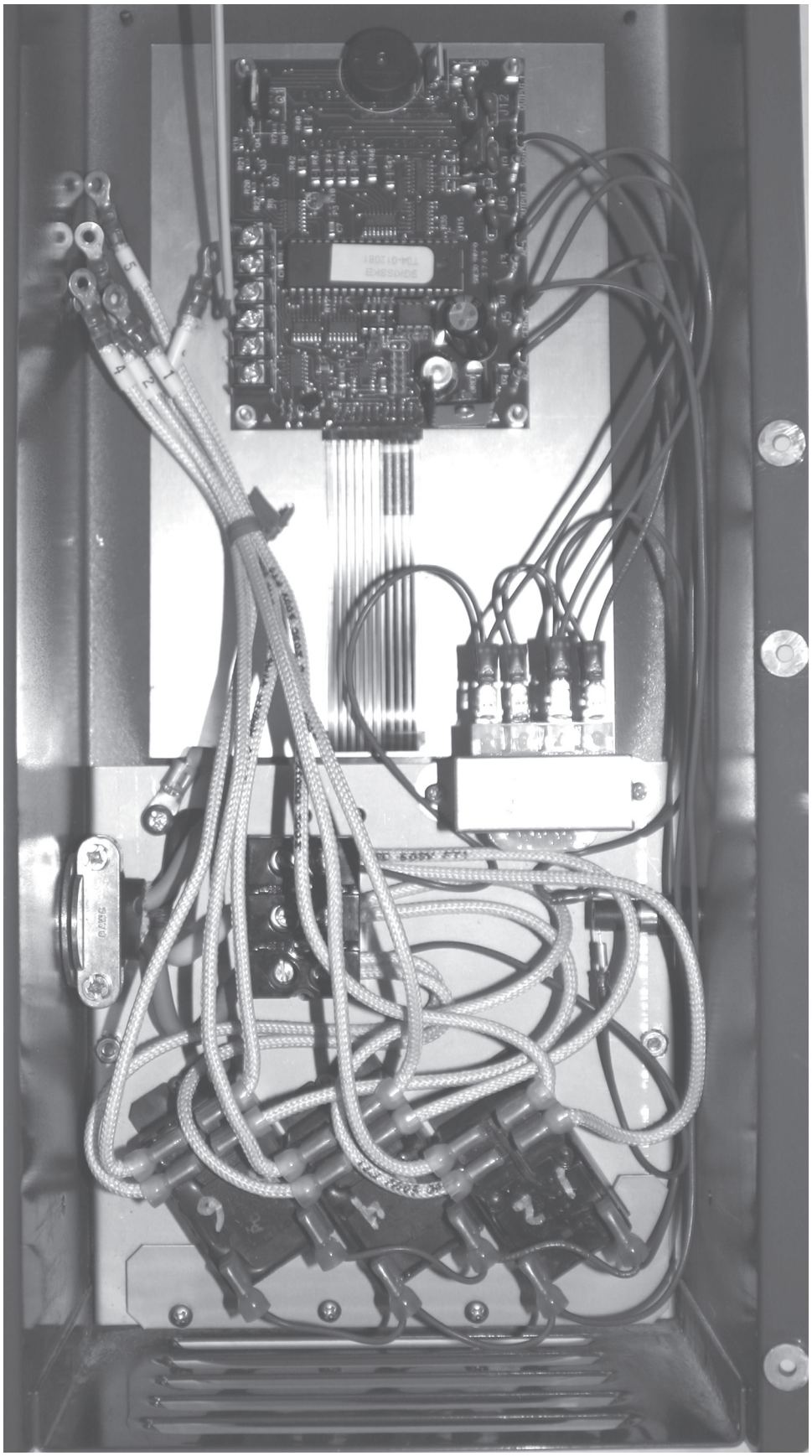
8. All of the wiring should be connected now. Check all wiring for any loose ends or unattached connectors. Refer to the photo #4, finished wiring, if necessary to determine proper connection points. Ensure that all wiring is neatly routed around components such as the transformer. Reroute the wiring as necessary to eliminate kinks or pinch points.
9. Reinstall the fiberglass lined heat baffle in place using the 4 sheet metal screws. When placing the heat baffle in place, ensure that no wiring is pinched or caught in the control box.
10. Reinstall the control box on your kiln. Ensure that all the white feeder wires are connected, that none of the tabs are loose and that the thermocouple push on connectors are connected to the proper polarity (red is negative "-"). Close the control box and secure using the six sheet metal screws.

Your installation should be complete!

11. An empty test firing of your kiln is strongly recommended before firing any valuable ware.

RELAY REPLACEMENT CONTINUED

PHOTO #4



KilnMaster Relay Replacement

FOR MODELS: KM1218-3 1-PHASE 208/240 VOLT

This relay replacement kit is intended to replace three relays and all the necessary relay wiring in your kiln. It is absolutely necessary to install the entire kit including all relays and wiring for proper performance. Do not re-use any of the original black wiring.

Your new relay replacement kit consists of the following items:

1. Three relays with all of the necessary harness and control wires attached.
2. Two - three inch long white jumper wires with blue ring tongue connectors.
3. One relay adapter plate.

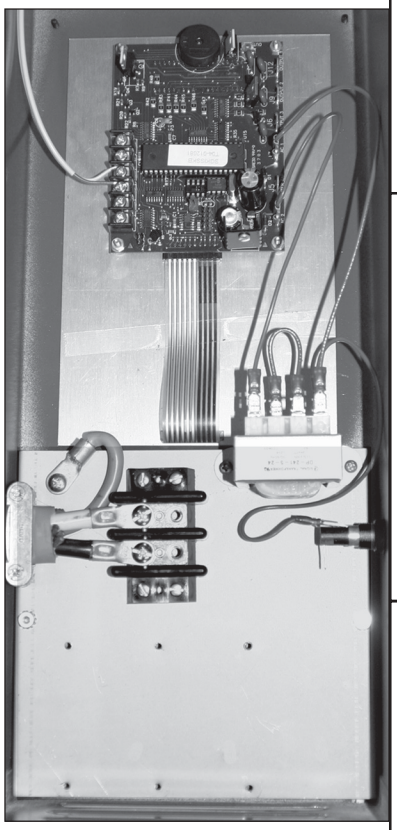
The tools necessary to install the relay replacement kit are a #2 Phillips screwdriver and a small slotted screwdriver.

STEP-BY-STEP INSTRUCTIONS:

Before beginning the actual replacement, it is strongly recommended to read through these instructions to familiarize yourself with the following procedures.

RELAY AND WIRING REMOVAL

PHOTO #1



1. Unplug your kiln. Remove your control box from the kiln. Place the control box, face down on a flat surface. Protect the touchpad of your control box with a soft cloth or towel.
2. Remove the fiberglass lined heat baffle by removing the four sheet metal screws holding it in place. Carefully lift the heat baffle out of the control box, taking care not to stretch the attached wires on the underside.
3. Using the Phillips screwdriver, remove the six black wires and the two short jumper wires attached to the heat baffle terminal strip. Please note the location of the two short jumper wires on the terminal strip and the method of attachment. It will be necessary to install the new wiring in an identical manner. Save your screws. If you want to get the heat baffle entirely out of the way, remove the remaining red and yellow thermocouple wires.
4. Begin removal of the three old relays from the control box by removing the six sheet metal screws holding the relays in place. Save your screws. ALL wires, both black and red, connected to the relays will re removed. With the relays loosened, remove the two large screws on the terminal block holding the black relay wiring in place. The wires at this point should be crimped into two large silver connectors that also will contain one red wire each. Follow each red wire and remove the push-on connectors from the fuse holder and the transformer bottom tab. Use a gentle side to side rocking and pulling motion to remove these connectors. Be especially careful when removing the connector from the transformer to avoid damaging it. Remove the red connector from the top-center transformer tab also. Remove the top red wire connected to the circuit board labeled output 2. Remove the

(continued)

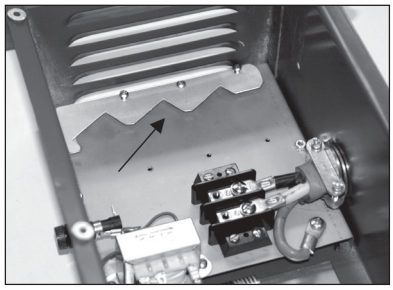
RELAY REPLACEMENT CONTINUED

double red wire on the circuit board labeled center tap. Carefully pull the relays and all attached wires out of the control box.

5. Refer to photo #1 to ensure that all of the relays and proper wiring has been removed.

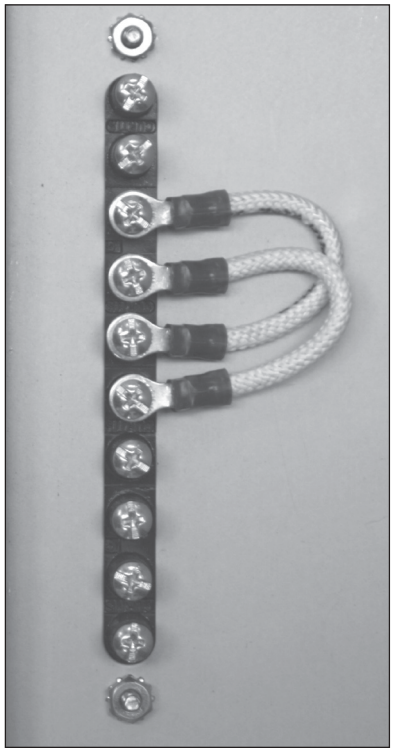
RELAY INSTALLATION

PHOTO #2



1. Inspect the orientation of the new relays, wiring and metal adapter plate in its shipping cardboard. The relays will be installed in the control box with the same orientation. Remove the new relays, wiring and metal adapter place from its packing material. Take care to keep the orientation of the new relays as packed to avoid twisting the wires. Locate the metal adapter plate; it will be installed first.
2. Install the metal relay adapter plate in the control box using 3 of the old relay screws. The silver colored spacers on the adapter plate should be placed directly against the metal chassis and screwed down lightly. Use the bottom set of existing holes in the metal chassis for mounting the adapter plate. Refer to photo #2 for the proper orientation of the metal adapter plate.
3. Place the 3 new relays and wiring harnesses in place on the metal chasses. Slide the bottom lip of each relay in its proper place. The plastic lip of the relays should slide underneath the top notched portion of the metal relay adapter plate.
4. Using the remaining 3 old relay screws, fasten down the remaining lips of the new relays using the existing holes in the metal chassis. Lightly tighten down all six screws holding the relays in place. Do not overtighten the screws as they may strip out.

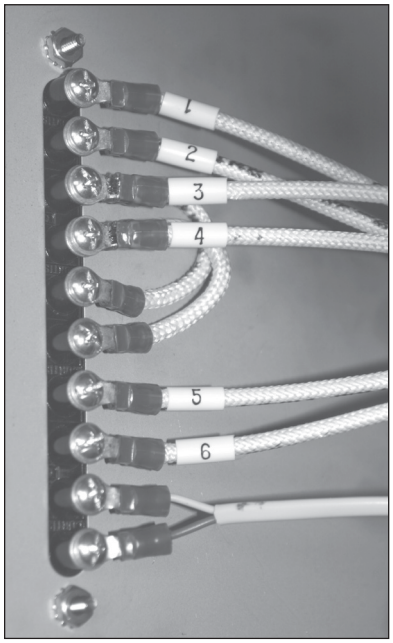
PHOTO #3



5. Locate the two large silver ring tongue connectors that contain 3 white wires and one small red wire each and fasten to the terminal block securely. It makes no difference if the ring tongue connectors are switched in position on the terminal block. Tighten these screws VERY tight.
6. Locate the two small red wires mentioned above in step #5. Plug one red wire into the vacant bottom tab of the transformer and the other red wire into the fuse holder.
7. Locate the two long red wires attached to the black relays. One wire will have a double end. Plug the wire with the double lead into the circuit board in the position labeled center tap. Plug the loose end of this wire into the top center tab of the transformer. Plug the other single long red wire into the circuit board on the tab labeled output 2.
8. Find the two small 3" long white jumper wires in your kit. Attach one jumper wire from position #3 to position #5 on the terminal strip. Attach the other jumper wire from position #4 to position #6 on the terminal strip. Refer to the numbered strip on the other side of the heat baffle for proper wire position. Refer to photo #3 for proper positioning of the jumper wires. Locate the six, white, ten inch long wires attached to the relays that are labeled 1 through 6. Attach these six

RELAY REPLACEMENT CONTINUED

PHOTO #4



wires to the heat baffle terminal strip using the old screws. Attach wire #1 to position #1 on the terminal strip. Repeat until wire #4 is connected. Attach wire #5 to position #7 on the terminal strip. Attach wire #6 to position #8 on the terminal strip. Refer to photo #4 for proper connections. Ensure that these connectors are lined up nicely and all screws are securely tightened. Reconnect the red and yellow thermocouple wire if necessary. Make sure the red thermocouple wire is connected to the negative position of the terminal strip. This would be the end (or bottom) connector on the terminal strip. It is labeled "-" on the other side.

9. All of the wiring should be connected now. Check all wiring for any loose ends or unattached connectors. Refer to the photo #5, finished wiring, if necessary to determine proper connection points. Ensure that all wiring is neatly routed around components such as the transformer. Reroute the wiring as necessary to eliminate kinks or pinch points.

10. Reinstall the fiberglass lined heat baffle in place using the four sheet metal screws. When placing the heat baffle in place, ensure that no wiring is pinched or caught in the control box.

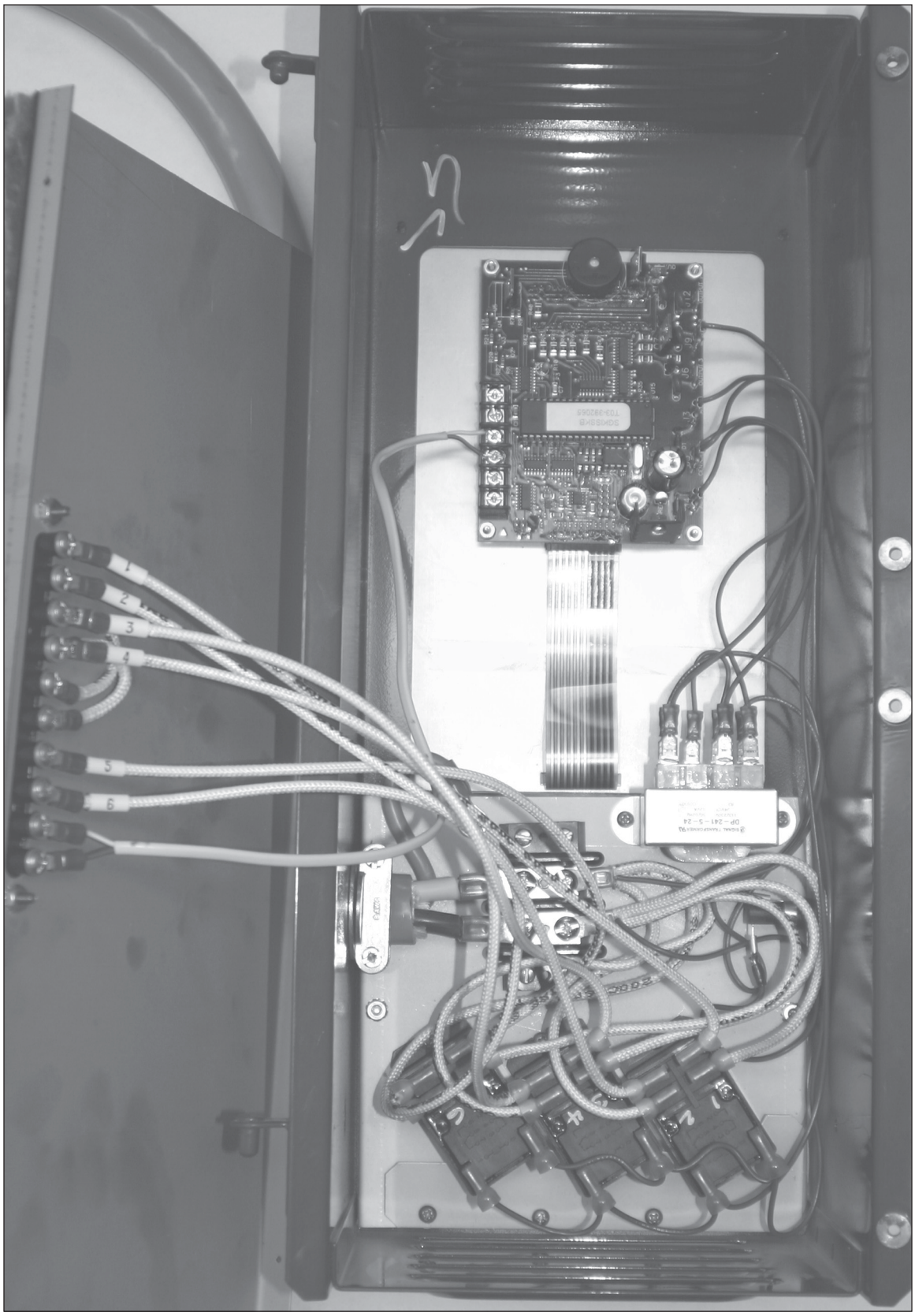
11. Reinstall the control box on your kiln. Ensure that all the white feeder wires are connected, that none of the tabs are loose and that the thermocouple push on connectors are connected to the proper polarity (red is negative "-"). Close the control box and secure using the six sheet metal screws.

Your installation should be complete!

12. An empty test firing of your kiln is strongly recommended before firing any valuable ware.

RELAY REPLACEMENT CONTINUED

PHOTO #5



KilnMaster Relay Replacement

FOR MODELS: KM1027 / KM1227 3-PHASE 208/240 VOLT

This relay replacement kit is intended to replace three relays and all the necessary relay wiring in your kiln. It is absolutely necessary to install the entire kit including all relays and wiring for proper performance. Do not re-use any of the original black wiring.

Your new relay replacement kit consists of the following items:

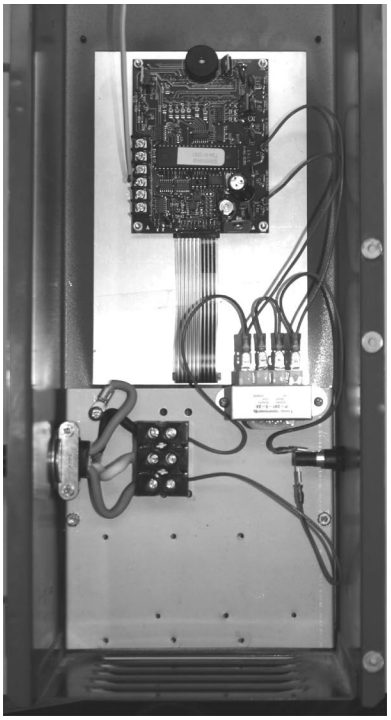
1. Three relays with all of the necessary harness and control wires attached
2. One relay adapter plate.

The tools necessary to install the relay replacement kit are a #2 Phillips screwdriver and a small slotted screwdriver.

STEP-BY-STEP INSTRUCTIONS:

Before beginning the actual replacement, it is strongly recommended to read through these instructions to familiarize yourself with the following procedures.

PHOTO #1



RELAY AND WIRING REMOVAL

1. Unplug your kiln. Remove your control box from the kiln. Place the control box, face down on a flat surface. Protect the touchpad of your control box with a soft cloth or towel.
2. Remove the fiberglass lined heat baffle by removing the six sheet metal screws holding it in place. Carefully lift the heat baffle out of the control box, taking care not to stretch the attached wires on the underside.
3. Using the Phillips screwdriver, remove the six black wires attached to the heat baffle terminal strip. Save your screws. If you want to get the heat baffle entirely out of the way, remove the remaining red and yellow thermocouple wires.
4. Begin removal of the three old relays from the control box by removing the six sheet metal screws holding the relays in place. Save your screws. ALL wires, both black and red, connected to the relays will re removed. With the relays loosened, locate the 3-phase terminal block and loosen the screws holding the wires to the relays in place. Note the position of the two red wires connected to the terminal block when you remove the black relay wires. These red wires must be replaced in the same position when installing the new white wires coming from the relays. Use a gentle side to side rocking and pulling motion to remove the following wiring connectors. Remove the red connector from the top-center transformer tab. Remove the top red wire connected to the circuit board labeled output 2. Remove the double red wire on the circuit board labeled center tap. Carefully pull the relays and all attached wires out of the control box.

(continued)

RELAY REPLACEMENT CONTINUED

5. Refer to photo #1 to ensure that all of the relays and proper wiring have been removed.

RELAY INSTALLATION

1. Inspect the orientation of the new relays, wiring and metal adapter plate in its shipping cardboard. The relays will be installed in the control box with the same orientation. Remove the new relays, wiring and metal adapter place from its packing material. Take care to keep the orientation of the new relays as packed to avoid twisting the wires. Locate the metal adapter plate; it will be installed first.
2. Install the metal relay adapter plate in the control box using 3 of the old relay screws. The silver colored spacers on the adapter plate should be placed directly against the metal chassis and screwed down lightly. Use the bottom set of existing holes in the metal chassis for mounting the adapter plate. Refer to photo #2 for the proper orientation of the metal adapter plate.

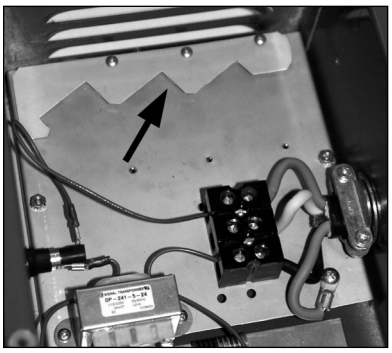


PHOTO #2

3. Place the 3 new relays and wiring harnesses in place on the metal chasses. Slide the bottom lip of each relay in its proper place. The plastic lip of the relays should slide underneath the top notched portion of the metal relay adapter plate.
4. Using the remaining 3 old relay screws, fasten down the remaining lips of the new relays using the existing holes in the metal chassis. Lightly tighten down all six screws holding the relays in place. Do not overtighten the screws as they may strip out.
5. Connecting the new relay wiring to the terminal block is a crucial step that must be accomplished correctly. Each relay should have two white wires with stripped ends connected to it. These wires with the stripped ends must be securely fastened into the black, 3-position terminal block. The relays will be numbered 1-6. Take the two wires numbered 1 and 3 and install them into the terminal block in the right most hole. Ensure that the existing red wire previously noted is installed also. Take the two wires numbered 2 and 5 and install them into the center hole. Take the two wires numbered 4 and 6 and install them into the remaining hole along with the existing old red wire previously noted.
6. Locate the two long red wires attached to the black relays. One wire will have a double end. Plug the wire with the double lead into the circuit board in the position labeled center tap. Plug the loose end of this wire into the top center tab of the transformer. Plug the other single long red wire into the circuit board on the tab labeled output 2.
7. Find the six, white, ten inch long wires attached to the relays. Attach these six wires to the heat baffle terminal strip using the old screws. Attach wire #1 (wires designations are labled on each relay) to position #1 on the terminal strip. Ensure that these connectors are lined up nicely and securely tightened. Refer to the numbered strip on the other side of the heat baffle for proper wire position. Reconnect the red and yellow thermocouple wire if necessary. Make sure the red thermocouple wire is connected to the negative position of the terminal strip. This would be the end (or bottom) connector on the terminal strip. It is labeled "-" on the other side.
8. All of the wiring should be connected now. Check all wiring for any loose ends or unattached connectors. Refer to the photo #3, finished wiring, if necessary to determine proper connection points. Ensure that all wiring is neatly routed around components such as the transformer. Reroute the wiring as necessary to eliminate kinks or pinch points.

RELAY REPLACEMENT CONTINUED

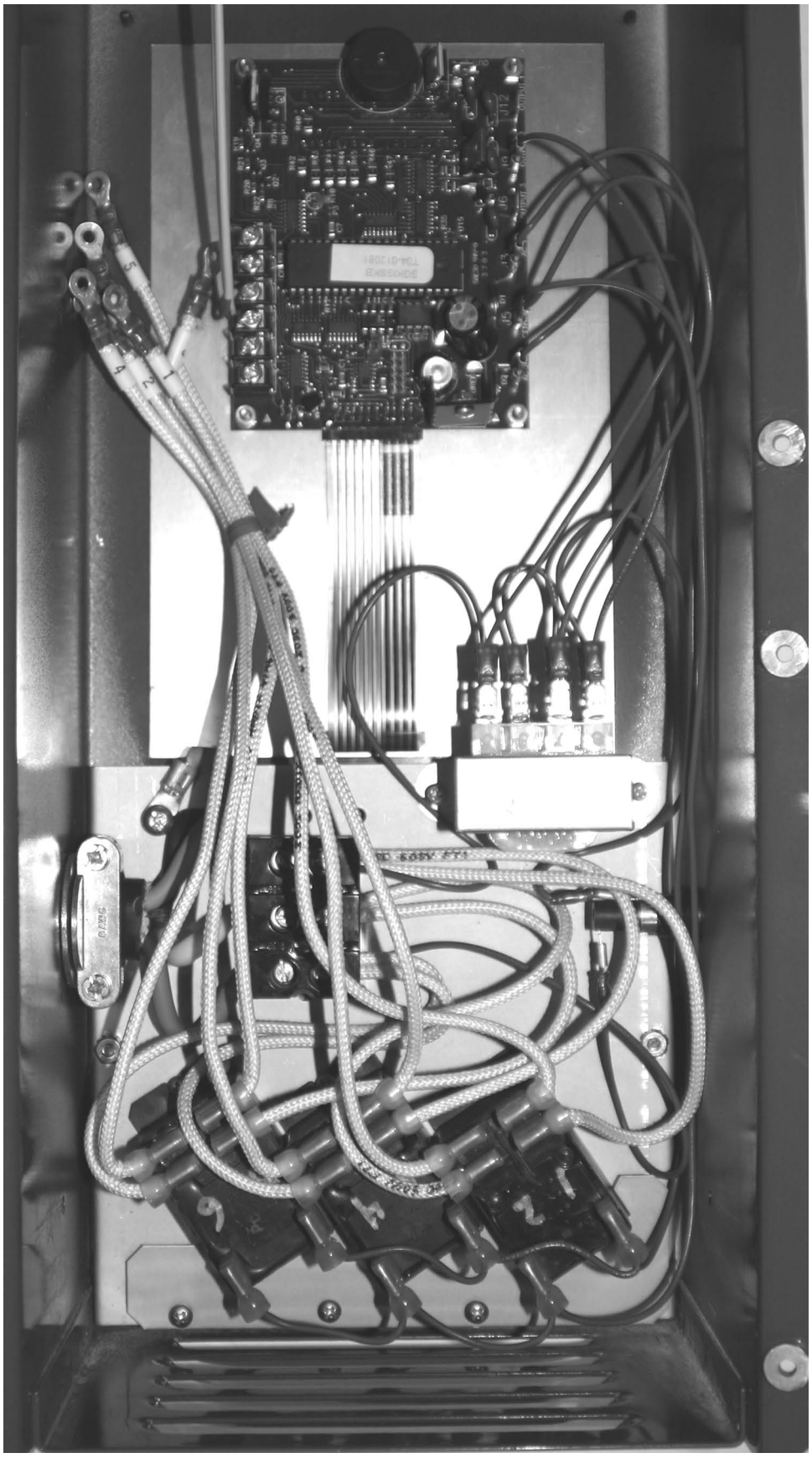
9. Reinstall the fiberglass lined heat baffle in place using the six sheet metal screws. When placing the heat baffle in place, ensure that no wiring is pinched or caught in the control box.
10. Reinstall the control box on your kiln. Ensure that all the white feeder wires are connected, that none of the tabs are loose and that the thermocouple push on connectors are connected to the proper polarity (red is negative "-"). Close the control box and secure using the six sheet metal screws.

Your installation should be complete!

11. An empty test firing of your kiln is strongly recommended before firing any valuable ware.

RELAY REPLACEMENT CONTINUED

PHOTO #3



KilnMaster Relay Replacement

FOR MODELS: GM1414 1-PHASE 208/240 VOLT

This relay replacement kit is intended to replace three relays and all the necessary relay wiring in your kiln. It is absolutely necessary to install the entire kit including all relays and wiring for proper performance. Do not re-use any of the original black wiring.

Your new relay replacement kit consists of the following items:

1. Three relays with all of the necessary harness and control wires attached
2. One relay adapter plate.

The tool necessary to install the relay replacement kit is a #2 Phillips screwdriver

STEP-BY-STEP INSTRUCTIONS:

Before beginning the actual replacement, it is strongly recommended to read through these instructions to familiarize yourself with the following procedures.

Since the GM1414 control box will be removed from your kiln, but will still be attached to the kiln lid box by the steel wiring cable, you can perform the upgrade using the lid of your kiln, or you can set up a small workbench or table for your convenience.

PHOTO #1

RELAY AND WIRING REMOVAL

1. Unplug your kiln. Remove your control box from the kiln. Place the control box, face down on a flat surface as mentioned above. Protect the touchpad of your control box with a soft cloth or towel.
2. Remove the fiberglass lined heat baffle by removing the four sheet metal screws holding it in place. Carefully lift the heat baffle out of the control box, taking care not to stretch the attached wires on the underside.
3. Using the Phillips screwdriver, remove the six black wires attached to the heat baffle terminal strip. Positions one through four on the terminal strip will have an extra wire that carries electricity to the lid heating elements. Leave these four wires in place by securing them with the terminal strip screw in their original positions. If you want to get the heat baffle entirely out of the way, remove the remaining red and yellow thermocouple wires.
4. Begin removal of the three old relays from the control box by removing the six sheet metal screws holding the relays in place. Save your screws. ALL wires, both black and red, connected to the relays will re removed. With the relays loosened, remove the two large screws on the terminal block holding the black relay wiring in place. The wires at this point should be crimped into two large silver connectors that also will contain one red wire each. Follow each red wire and remove the push-on connectors from the

(continued)

RELAY REPLACEMENT CONTINUED

fuse holder and the transformer bottom tab. Use a gentle side to side rocking and pulling motion to remove these connectors. Be especially careful when removing the connector from the transformer to avoid damaging it. Remove the red connector from the top-center transformer tab also. Remove the top red wire connected to the circuit board tab labeled output 2. Remove the double red wire on the circuit board tab labeled center tap. Carefully pull the relays and all attached wires out of the control box.

5. Refer to photo #1 to ensure that all of the relays and proper wiring have been removed.

RELAY INSTALLATION

PHOTO #2

1. Inspect the orientation of the new relays, wiring and metal adapter plate in its shipping cardboard. The relays will be installed in the control box with the same orientation. Remove the new relays, wiring and metal adapter place from its packing material. Take care to keep the orientation of the new relays as packed to avoid twisting the wires. Locate the metal adapter plate; it will be installed first.
2. Install the metal relay adapter plate in the control box using 3 of the old relay screws. The silver colored spacers on the adapter plate should be placed directly against the metal chassis and screwed down lightly. Use the bottom set of existing holes in the metal chassis for mounting the adapter plate. Refer to photo #2 for the proper orientation of the metal adapter plate.
3. Place the 3 new relays and wiring harnesses in place on the metal chasses. Slide the bottom lip of each relay in its proper place. The plastic lip of the relays should slide underneath the top notched portion of the metal relay adapter plate.
4. Using the remaining 3 old relay screws, fasten down the remaining lips of the new relays using the existing holes in the metal chassis. Lightly tighten down all six screws holding the relays in place. Do not overtighten the screws as they may strip out.
5. Locate the two large silver ring tongue connectors that contain 3 white wires and one small red wire each and fasten to the terminal block securely. It makes no difference if the ring tongue connectors are switched in position on the terminal block. Tighten these screws VERY tight.
6. Locate the two small red wires mentioned above in step #5. Plug one red wire into the vacant bottom tab of the transformer and the other red wire into the fuse holder.
7. Locate the two long red wires attached to the black relays. One wire will have a double end. Plug the wire with the double lead into the circuit board in the position labeled center tap. Plug the loose end of this wire into the top center tab of the transformer. Plug the other single long red wire into the circuit board on the tab labeled output 2.
8. Find the six, white, ten inch long wires attached to the relays that are labeled 1 through 6 on the relays. Attach these six wires to the heat baffle terminal strip using the old screws. Attach wire #1 to position #1 on the terminal strip over the top of the existing connector and wire. White wires numbered one through four will be installed over the connectors of the existing wires. White wires five and six will be the only wires connected to the terminal strip. Ensure that these connectors are lined up nicely and securely tightened. Refer to the numbered strip on the other side of the heat baffle

RELAY REPLACEMENT CONTINUED

for proper wire position. Reconnect the red and yellow thermocouple wire if necessary. Make sure the red thermocouple wire is connected to the negative position of the terminal strip. This would be the end (or bottom) connector on the terminal strip. It is labeled "-" on the other side.

9. All of the wiring should be connected now. Check all wiring for any loose ends or unattached connectors. Refer to the photo #3, finished wiring, if necessary to determine proper connection points. Ensure that all wiring is neatly routed around components such as the transformer. Reroute the wiring as necessary to eliminate kinks or pinch points.
10. Reinstall the fiberglass lined heat baffle in place using the six sheet metal screws. When placing the heat baffle in place, ensure that no wiring is pinched or caught in the control box.
11. Reinstall the control box on your kiln. Ensure that all the white feeder wires are connected, that none of the tabs are loose and that the thermocouple push on connectors are connected to the proper polarity (red is negative "-"). Close the control box and secure using the six sheet metal screws.

Your installation should be complete!

RELAY REPLACEMENT CONTINUED

PHOTO #3