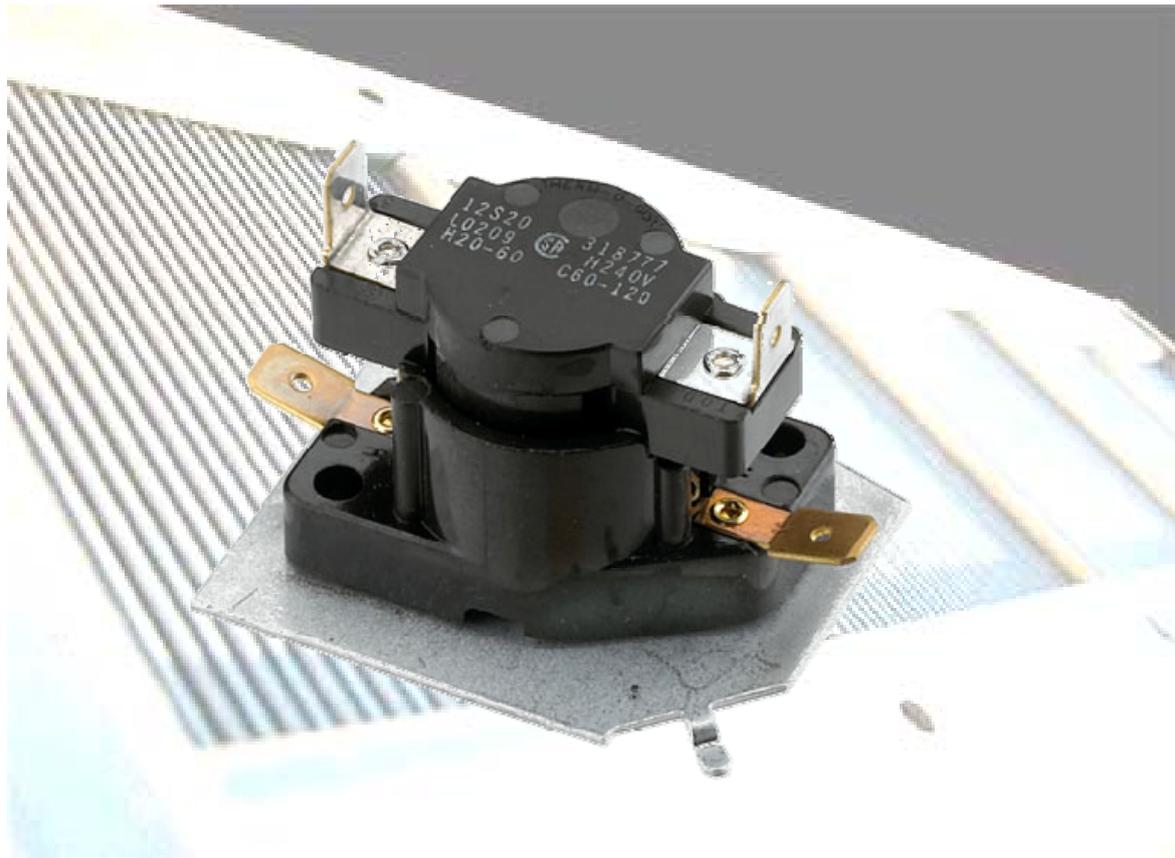


REPLACEMENT FAN CONTROL TIME RELAYS FOR WARM AIR HEATERS.



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Warnings

All external wiring **MUST** comply with the current IEE wiring regulations.

General information.

Replacement Fan Control Relays for UDSA; UDSB-D; UPA; ST-2; UC series; T series and ST series 1 heaters have changed type. SCA heaters remain unaffected. This technical bulletin supersedes TB/GB/010/0706 and 0207.

The change involves the replacement of the standard Fan Control Relay (FC) with a Time Delay Relay (KFC).

This will enable a wider tolerance of control over the axial fan by switching the motor between 20 seconds to a minute after the gas valve/venter had energised. The axial fan will switch off one to two minutes after the gas valve closes/venter motor stops operating.

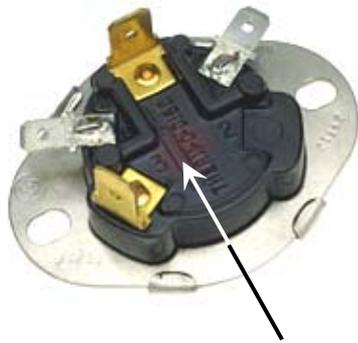


fig.1 — Original Fan Control Relay

This technical bulletin describes in detail the procedure required to complete the replacement of the Time Delay Relay and any wiring changes on all heater types and variants.

The information contained in this technical bulletin is designed to aid a qualified or competent service technician.

Factory fitted replacement Fan Control Time Relays on these heaters commenced from March 2006 or serial number 06 4500080 (UDSA/UPA) and September 2006 or serial number 06 45 01428 (ST-2/UC series).

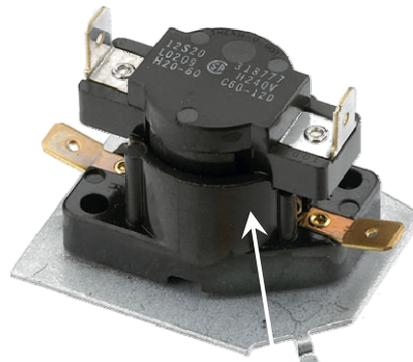


fig.2 — Replacement Fan Control Time Relay

Tools required.

The following tools and equipment will be required to complete this task:

1. Fan Time Delay Relay kit* (Ambi-Rad pt no. FC0320409)
2. Flat head screwdriver
3. 8mm Nut runner (or spanner)
4. Electrical screwdriver
5. Drill
6. 3mm & 5mm drill bits
7. Crimping tool
8. Multi-meter.
9. Silicone sealant
10. kit* consists of:
 - a 1 x time delay relay
 - b 1 x white wire
 - c 1 x blue wire
 - d 2 red connectors
 - e 2 blue connectors
 - f 3 x self tapping screws
 - g 1 x cover plate

Step by step instructions

! ISOLATE ALL ELECTRICAL SUPPLY TO THE HEATER & CONTROLLER BEFORE PROCEEDING.

Please take a minute to check the type of heater to be modified (this information can be found under 'Model no.' on the heater data badge.)

Find the heater type and follow the procedure under the headings shown.



fig.3 - Typical Fan Control in situ

Step by step instructions - by heater type.

UDSA, UDSAV, UDSB-D & UPA HEATERS



Kit components used: a, b, c, d(x2) & f(x1)

1. Open heater control section side panel by turning quarter turn screw anticlockwise. Allow door to hang.
2. Locate existing Fan Control Relay located on the back of the heat exchanger within the controls compartment. Please refer to the following photo for identification and exact location.

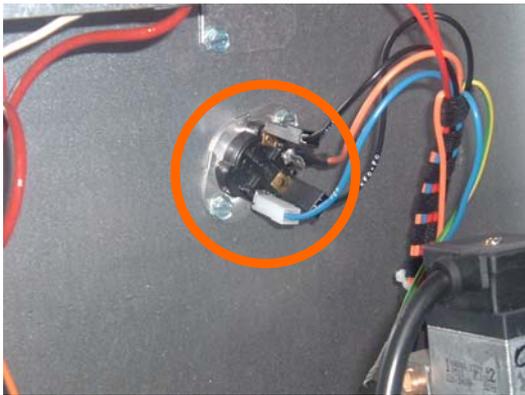
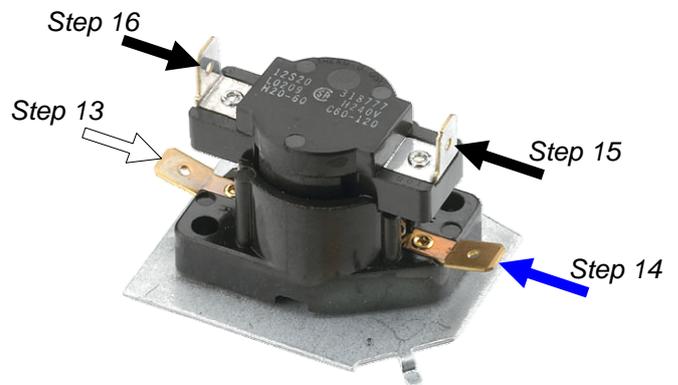


fig.4 - UDSA, UDSB-D & UPA models

3. Release the **ORANGE**, **BLUE** and two **BLACK** wires and connectors from existing Fan Control Relay.
4. Remove the two retaining screws holding the original Fan Control Relay to the wall of the heat exchanger.
5. Locate the new Fan Control Time Relay (**a**) from the kit of parts. With the back plate facing the wall of the heat exchanger, position the relay over the hole left from the original control. Position the lip of the plate in the upper hole. Mark and drill a 3mm hole at the other hole of the plate. Fix using the taptite screw (**f**). Ensure original hole is completely sealed with silicone
6. Using cable cutters or wire snipers, cut short both the **ORANGE** and the **BLUE** wires on the original harness.
7. To make safe, locate the two red connectors (**d**) from the kit of parts and using the crimping tool fit one connector to each end

of both the **ORANGE** and **BLUE** wires making them redundant

8. Locate both the spare **BLUE** (**b**) and the **WHITE** (**c**) cables from the kit of parts.
9. With the electrical screwdriver, loosen the terminal screws from terminals **11** and **12** of the mains terminal block.
10. Position the 'boot laced' end of the **WHITE** wire (**b**) into terminal **11** and tighten.
11. Position the 'boot laced' end of the **BLUE** wire (**c**) into terminal **12** and tighten.
12. With the connector ends approximately in line with the new connector ends of the **BLUE** and **WHITE** wires and, using the cable ties provided in the kit, arrange and clamp these additional wires along the harness towards the main heater terminal block.
13. At the other end of the harness, connect the new **WHITE** wire to one of the base terminals of the relay (as per sketch below).
14. Connect the new **BLUE** wire to the other base terminal of the relay (as per sketch below).
15. Reconnect the original **BLACK** wire to one of the top terminals of the relay (as per sketch below).
16. Reconnect the other original **BLACK** wire to the remaining top terminal of the relay (as per sketch below).



17. Using the cable ties provided in the kit to arrange and clamp the additional wire along the harness.
18. Check for tightness of wires and continuity.
19. Restore power to the heater and turn on the gas.
20. Light the burner, following the instructions on the lighting instruction plate.
21. Check for proper operation.
22. Close and lock the access door.

ST series2 with Hot Surface Ignition (HSI)



Kit components used: **a, c, d(x1), e, & f(x1)**

1. Open heater control section side panel by turning quarter turn screw anticlockwise. Allow door to hang.
2. Locate existing Fan Control Relay located on the back of the heat exchanger within the controls compartment. Please refer to the following photo for identification and exact location.

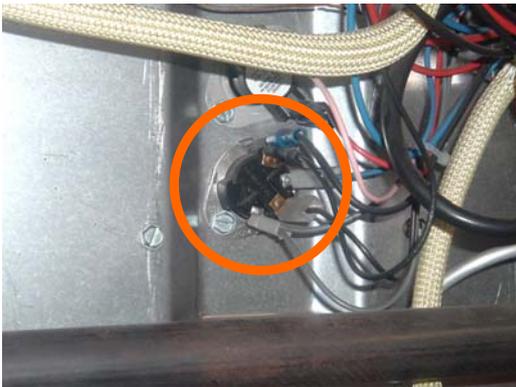
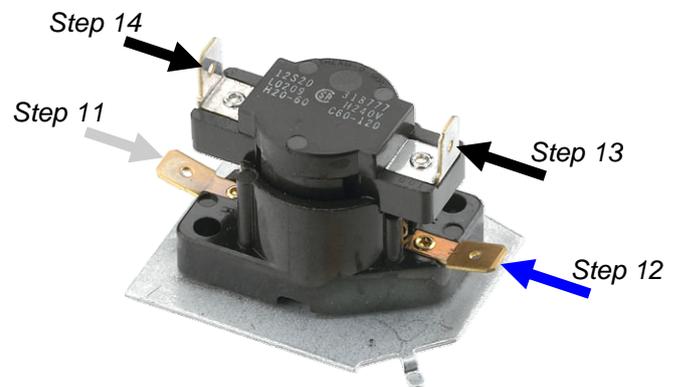


fig.5 - **ST series2 models**

3. Release the **BLUE**, two **BLACK** and a joined **GREY** wires and connectors from existing Fan Control Relay.
4. Remove the two retaining screws holding the original Fan Control Relay to the wall of the heat exchanger.
5. Locate the new Fan Control Time Relay (**a**) from the kit of parts. With the back plate facing the wall of the heat exchanger, position the relay over the hole left from the original control. Position the lip of the plate in the upper hole. Mark and drill a 3mm hole at the other hole of the plate. Fix using the taptite screw (**f**). Ensure original hole is completely sealed with silicone
6. Using cable cutters or wire snipers, cut off the existing push on terminal from the **BLUE** wire.
7. To make safe, locate the red connector (**d**) from the kit of parts and using the crimping tool fit one connector to the end of the **BLUE** wire making it redundant.

8. Using cable cutters or wire snipers, cut off the existing push on terminal from the two **GREY** wires.
9. Locate the blue connector (**e**) from the kit of parts and using the crimping tool, fit the joined **GREY** wires to this connector.
10. Locate the spare **BLUE** (**b**) cable from the kit of parts. Position the 'boot laced' end of the into terminal **2** and tighten.
11. Reconnect the joined **GREY** wires to terminal **H** at the top rear of the relay.
12. Connect the new **BLUE** wire to the other base terminal of the relay (as per sketch below).
13. Reconnect the original **BLACK** wire to one of the top terminals of the relay (as per sketch below).
14. Reconnect the other original **BLACK** wire to the remaining top terminal of the relay (as per sketch below).



15. Using the cable ties provided in the kit to arrange and clamp the additional wire along the harness.
16. Check for tightness of wires and continuity.
17. Restore power to the heater and turn on the gas.
18. Light the burner, following the instructions on the lighting instruction plate.
19. Check for proper operation.
20. Close and lock the access door.

ST series2 with Fast Response Ignition (FRI)



Kit components used: **a, e(x2) & f(x1)**

1. Open heater control section side panel by turning quarter turn screw anticlockwise. Allow door to hang.
2. Locate existing Fan Control Relay located on the back of the heat exchanger within the controls compartment. Please refer to the following photo for identification and exact location.

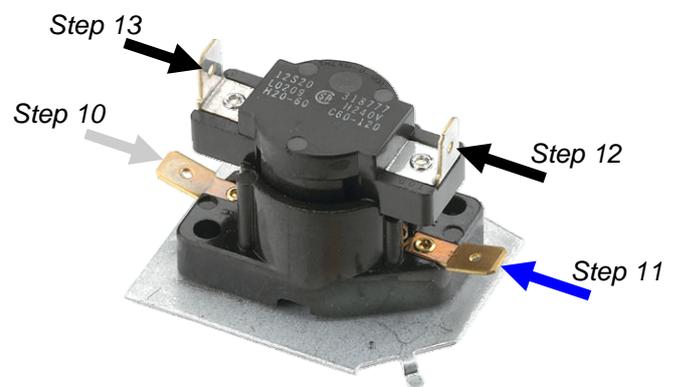


fig.6 - **ST series2 models**

3. Release the **BLUE**, two **BLACK** and a joined **GREY** wires and connectors from existing Fan Control Relay.
4. Remove the two retaining screws holding the original Fan Control Relay to the wall of the heat exchanger.
5. Locate the new Fan Control Time Relay (**a**) from the kit of parts. With the back plate facing the wall of the heat exchanger, position the relay over the hole left from the original control. Position the lip of the plate in the upper hole. Mark and drill a 3mm hole at the other hole of the plate. Fix using the taptite screw (**f**). Ensure original hole is completely sealed with silicone.
6. Using cable cutters or wire snipers, cut off the existing push on terminal from the **BLUE** wire.
7. Locate the blue connector (**e**) from the kit of parts and using the crimping tool, fit to the end of this **BLUE** wire.
8. Using cable cutters or wire snipers, cut off

the existing push on terminal from the two **GREY** wires.

9. Locate the blue connector (**e**) from the kit of parts and using the crimping tool, fit the joined **GREY** wires to this connector.
10. Connect the two **GREY** wires wire to one of the base terminals of the relay (as per sketch below).
11. Connect the **BLUE** wire to the other base terminal of the relay (as per sketch below).
12. Connect the original **BLACK** wire to one of the top terminals of the relay (as per sketch below).
13. Connect the original **BLACK** wire to the other top terminal of the relay (as per sketch below).



14. Using the cable ties provided in the kit to arrange and clamp the additional wire along the harness.
15. Check for tightness of wires and continuity.
16. Restore power to the heater and turn on the gas.
17. Light the burner, following the instructions on the lighting instruction plate.
18. Check for proper operation.
19. Close and lock the access door

UC series with Thermoelectric Ignition (TE)

Obsolete T series1 with Permanent pilot



Obsolete ST series1 & T series Autospark

1. Open heater control section side panel by turning quarter turn screw anticlockwise. Allow door to hang.
2. Locate existing Fan Control Relay located on the back of the heat exchanger within the controls compartment.



fig.7 - UC series models

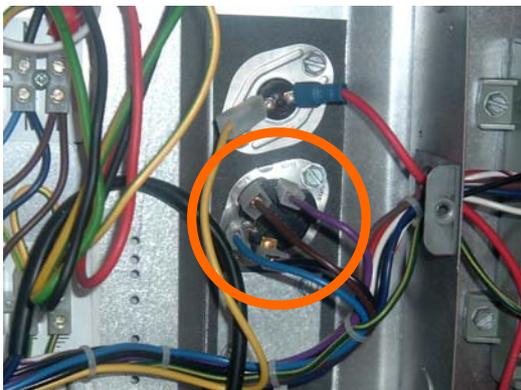
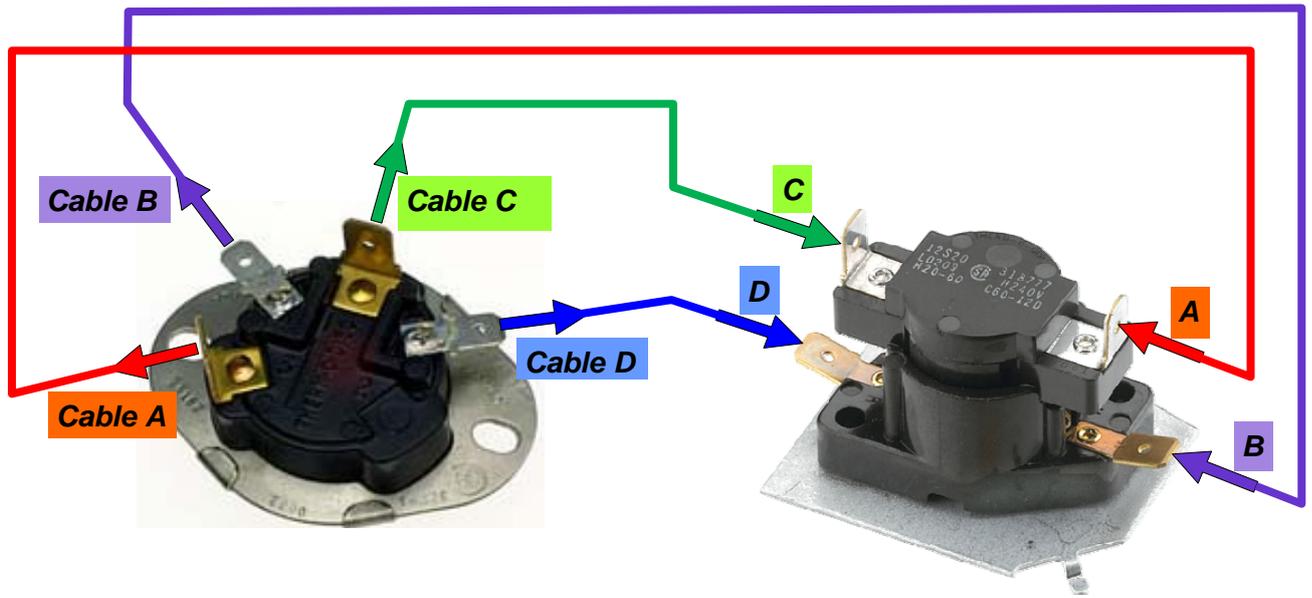


fig.8 - ST & T series 1 models

3. Remove the two retaining screws holding the original Fan Control Relay to the wall of the heat exchanger.
4. Locate the new Fan Control Time Relay **(a)** from the kit of parts. With the back plate facing the wall of the heat exchanger, position the relay to the right hand side of the wiring panel and mark the lip. Drill a 5mm hole. Position the lip of the plate in this hole. Mark and drill a 3mm hole at the other hole of the plate. Fix using the taptite screw **(f)**.
5. Locate the cover plate **(g)** and position over original hole. Fix using taptite screw **(f)**. Ensure original hole is completely sealed with silicone.
6. Individually remove cables from existing fan control relay and replace onto new Fan Control Time Relay exactly as shown opposite.
7. Using the cable ties provided in the kit to arrange and clamp the additional wire along the harness.
8. Check for tightness of wires and continuity.
9. Restore power to the heater and turn on the gas.
10. Light the burner, following the instructions on the lighting instruction plate.
11. Check for proper operation.
12. Close and lock the access door.



Notes:

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