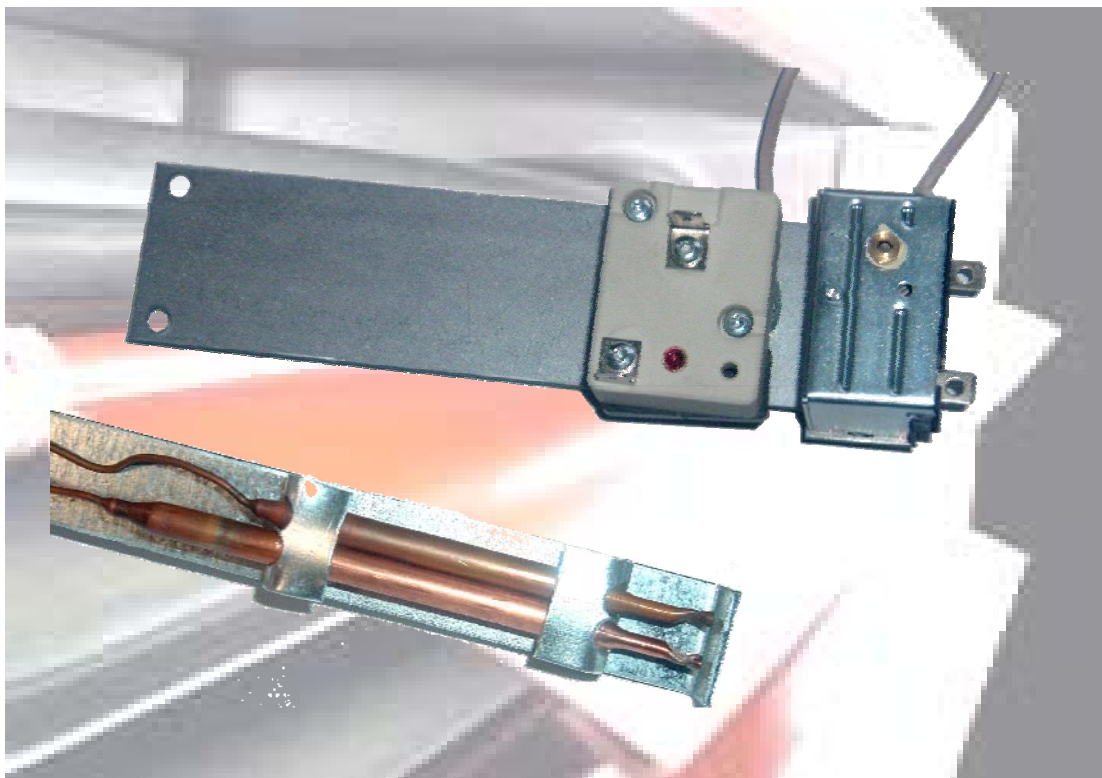


# REPLACEMENT LIMIT STATS FOR UDSA35 - 100 AND UPA40 - 90 HEATERS.



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Warnings

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

## General information.

Limit Controls (known as LC1 and LC3) for UDSA models 35 to 100 and UPA models 40 to 90 heaters have changed type.

The change involves the removal and replacement of the two individual standard limit controls with a fully assembled version.

This will enable a tighter control of the safety overheat cut out feature eliminating nuisance 'shut downs' and manual intervention.

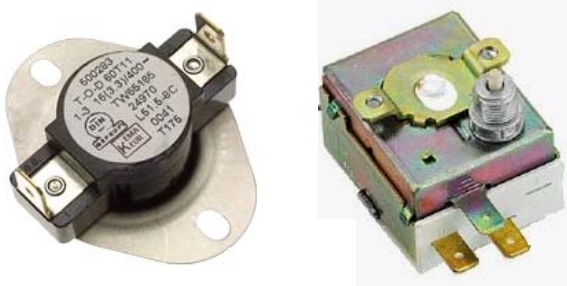


fig.1 - (L-R) Current LC1 and LC3 Limit Stats

This technical bulletin describes in detail the procedure required to complete the replacement of the Fan Control Time Relay and wiring changes. These instructions must be followed exactly. Please read through these instructions completely before starting the procedure.

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

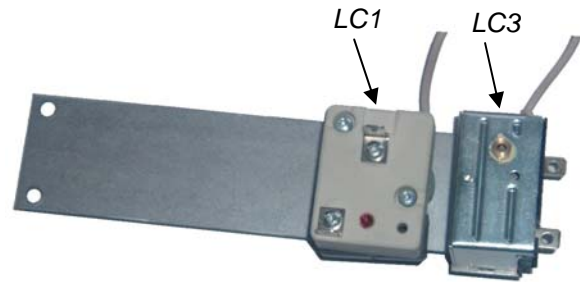


fig.2 - Replacement Limit Stat Assembly

**IT IS ESSENTIAL THAT THE CORRECT KIT IS INSTALLED FOR THE PARTICULAR HEATER CONCERNED.**

Please refer to the listing below for kit part numbers.

Kit part no.	Heater	Bracket length
03 20410 035	UDSA35	136mm
03 20410 043	UDSA43	136mm
03 20410 050	UDSA50	136mm
03 20410 055	UDSA55	136mm
03 20410 064	UDSA64	291mm
03 20410 073	UDSA73	291mm
03 20410 085	UDSA85	291mm
03 20410 100	UDSA100	291mm
03 20410 40	UPA40	136mm
03 20410 50	UPA50	206mm
03 20410 60	UPA60	136mm
03 20410 70	UPA70	136mm
03 20410 90	UPA90	206mm

## Tools required.

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

1. Limit Stat Retro kit\* (see part no. above)
2. Flat head screwdriver
3. 8mm Nut runner (or spanner)
4. Electrical screwdriver
5. Drill (electric/battery)
6. 30mm hole cutter
7. Pair of crimpers
8. Multi-meter.

9. Rule & marker

Each kit are packed and comprise of:

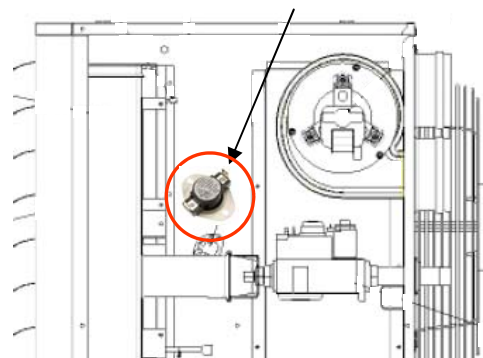
1. Bracket c/w LC3 & LC1 limits x1
2. Bracket cover plate x1
3. Hole cover plates x2
4. Orange wires c/w connectors x2
5. Self tapping screws x10
6. Set of instructions

## Step by step instructions.

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

1. Open heater control section side panel by turning quarter turn screw anticlockwise. Allow door to hang.
2. Locate existing LC1 Limit Stat located on the wall of the heat exchanger wall.

fig.3. - LC1 location.



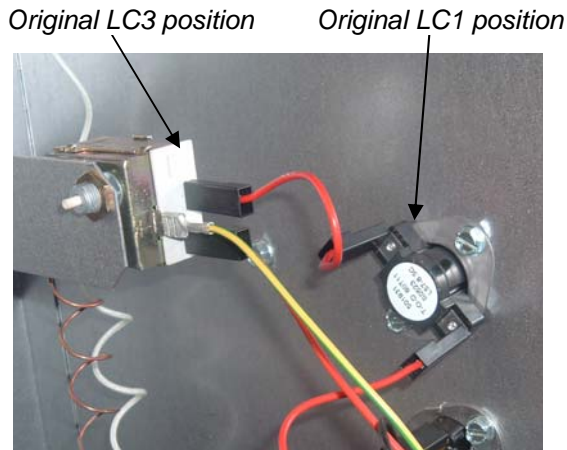


fig.4. - Limit Stat positions.

3. Remove both **RED** wire connectors from existing LC1 facia Limit Stat.
4. Remove both **RED** and **EARTH** wire connectors from existing LC3 Limit Stat. Dispose of the short **RED** wire

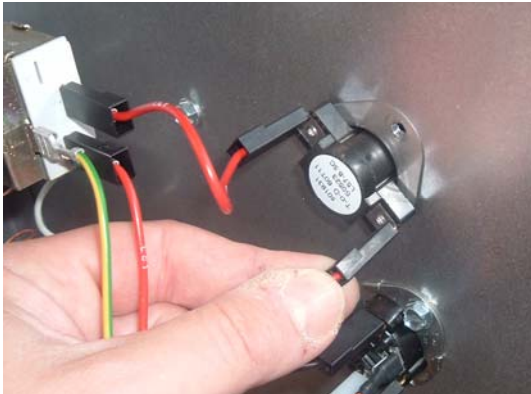


fig.5 - remove wire connectors from LC1 Limit Stat

5. Using an 8mm nut runner remove the two retaining screws and remove the Limit Stat from the wall of the heat exchanger. Retain the screws for later use.

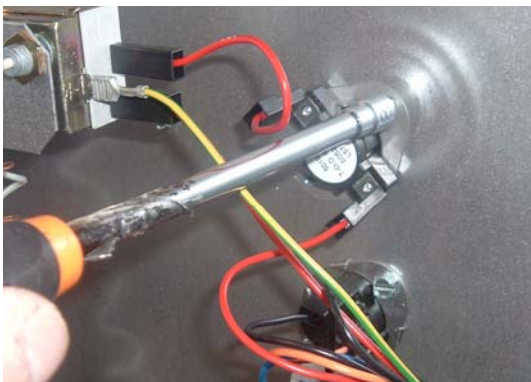


fig.6 - remove LC1 Limit Stat

6. Locate existing LC3 Limit Stat bracket located on the burner wall to the left hand side.

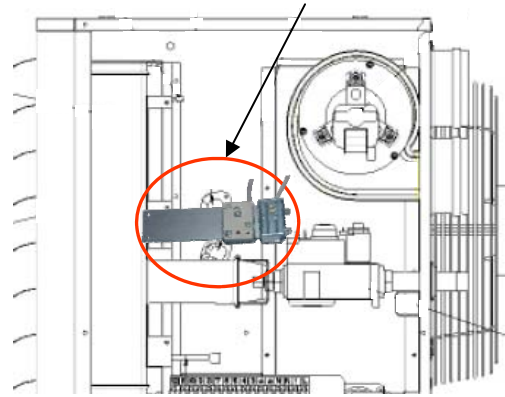


fig.7. - LC3 location.

7. Remove the two retaining screws and remove the LC3 Limit Stat bracket from the wall of the heat exchanger. Retain the screws for later.



fig.8 - remove LC3 Limit Stat bracket

8. To remove the LC3 capillary tube, firstly remove two screws, holding plate and gasket located inside the heater located at the bottom left corner.

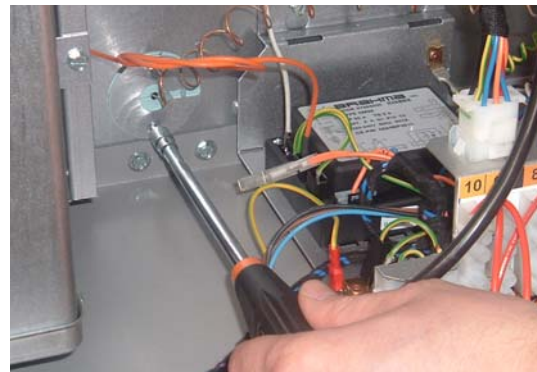


fig.9 - removing the LC3 capillary

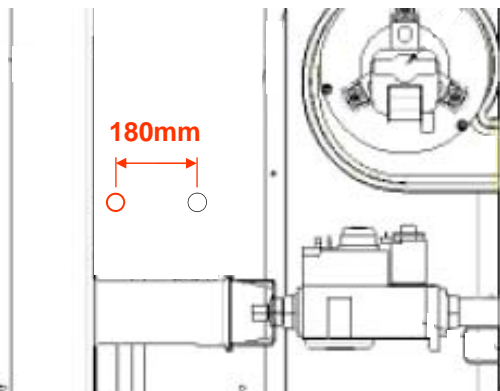
9. At the front of the heater, remove the lower 3 'spring return' louvers.

10. Locate the capillary bead and bracket in the space gained. Physically bend the bracket forward to gain access. Prise the capillary bead away from the bracket.
11. Remove the two screws holding the bracket to the heater and remove assembly. Pull the capillary tube back through the hole and dispose. Refit louvers.



fig.10 - removing the LC3 capillary

12. Replace the gasket, cover plate and two screws over the original LC3 hole as removed in step 8.



13. Using a rule and pencil (marker) measure a distance 180mm from the centre to the left of the hole and mark it's position.



fig.11. - new hole position.

14. Drill a pilot hole on that mark through the side of the heat exchanger. Using a suitable hole cutter, drill a 30mm hole through.



fig.12. - drilling a pilot hole.

15. Position the capillary bulb bracket through the hole Note: the bracket must have the 'bulbs' uppermost.



fig.13 - replacement limit 'bulb' orientation

16. Locate the bracket into position. The left hand side of the bracket face to be adjacent to the step in the body fold. Using the bracket face as a template, mark the four holes with a marker.



fig.14 - marking using template

17. Using a 3.5mm drill bit, drill 4 off holes at these marks.



fig.15 - drilling 4 holes

18. Reposition the capillary bulb bracket back through the large hole.

19. Locate the bracket cover plate and place over the top of this bulb bracket in opposing format to cover the gap. Seal all openings with silicone sealant.

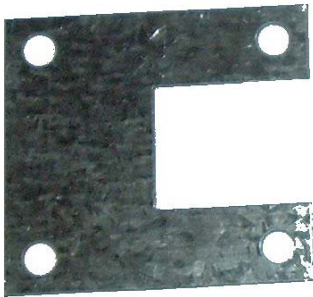


fig.16 - bracket cover plate from kit

20. Using the 4 self tapper screws supplied and an 8mm nut runner, tighten assembled bracket to the heat exchanger face.

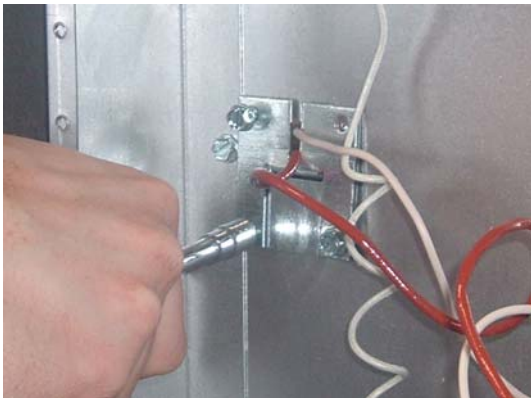


fig.17 - assembled capillary bulb bracket

21. Using the blanking plates from the retro kit, position plate over original LC1 hole and original LC3 capillary hole and locate with the screws from kit.



fig.18 - blanking plates from kit



fig.19 - fixing blanking plate over original LC1 hole



fig.20 - fixing blanking plate over LC3 capillary hole

22. Locate the new Limit Stat bracket to the wall of the heat exchanger using the two retaining screws from step 7.



fig.21 - position new limit stat bracket

23. Re-connect the existing loose **RED** wire that was connected to the original LC3 stat onto a terminal of the new LC3 stat.
24. Re-connect the second loose **RED** wire that was connected to the original LC1 stat onto the other terminal of the new LC3 stat.



fig.22 - new LC3 connections

25. From the terminal strip locate and using an electrical screwdriver, remove the **RED** wire from terminal 6.

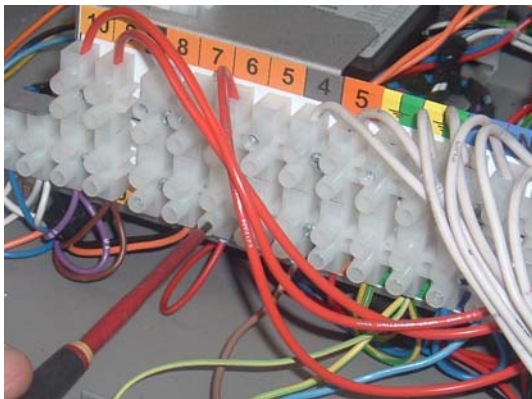


fig.23 - remove red wire from terminal 6

26. Locate the loose **ORANGE** wire from the new overheat bracket assembly (this wire is fitted with a female wire crimp). Using a suitable pair of wire crimpers, attach this crimp to the **RED** wire removed from step 25.



fig.24 - crimping red wires

27. Locate the second loose **ORANGE** wire from the new overheat bracket assembly. Strip bare the wire end (if necessary) and using an electrical screwdriver, position into terminal 6.

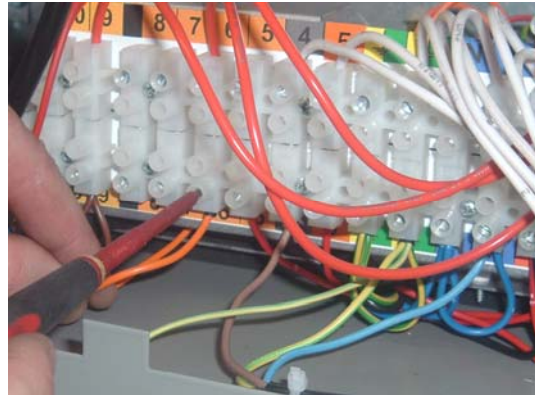


fig.25 - locate orange wire

28. Check positioning of the capillary bulb bracket which should be centred between the two heat exchanger tubes.

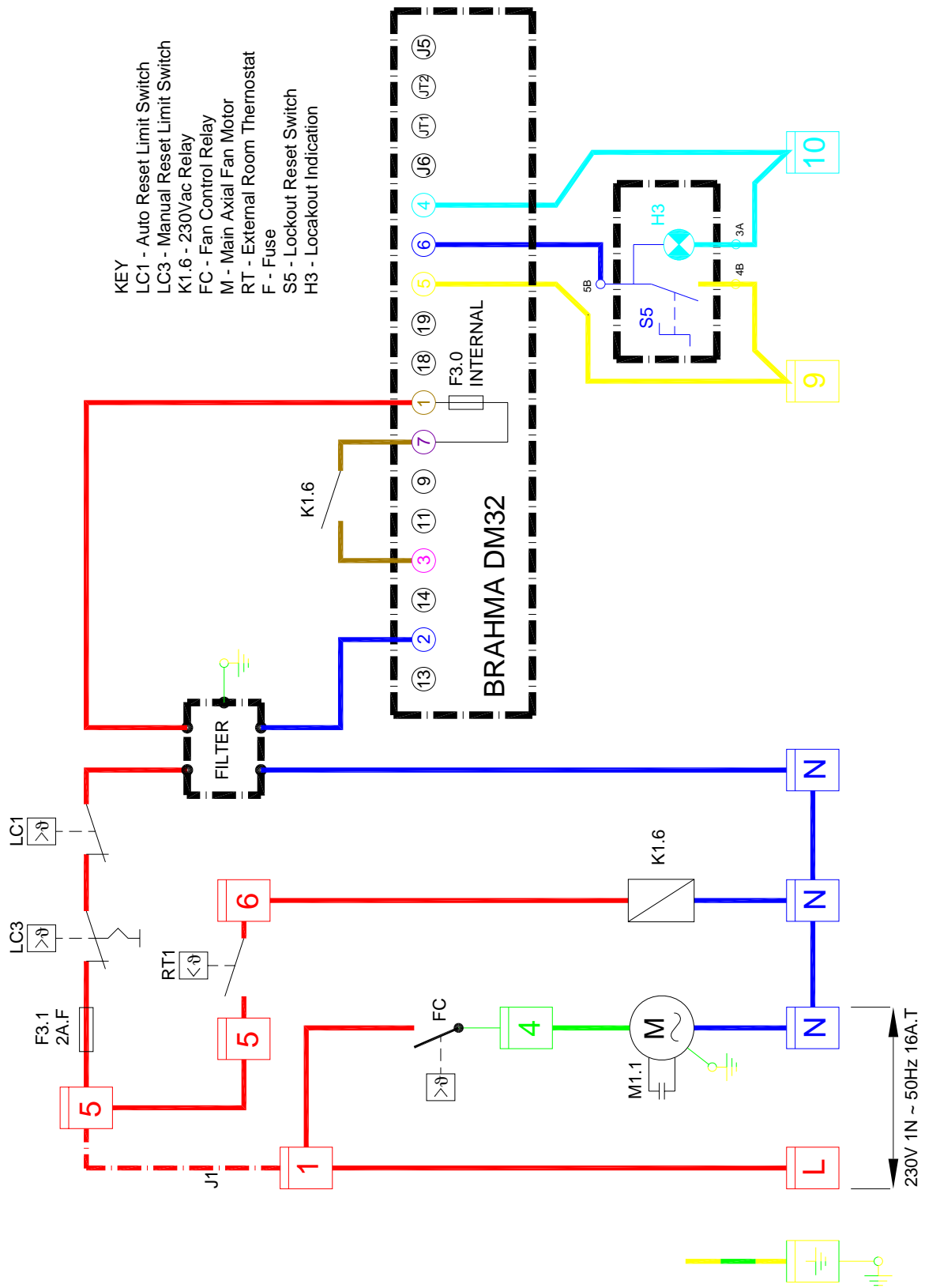


fig.26 - capillary bulb positioning

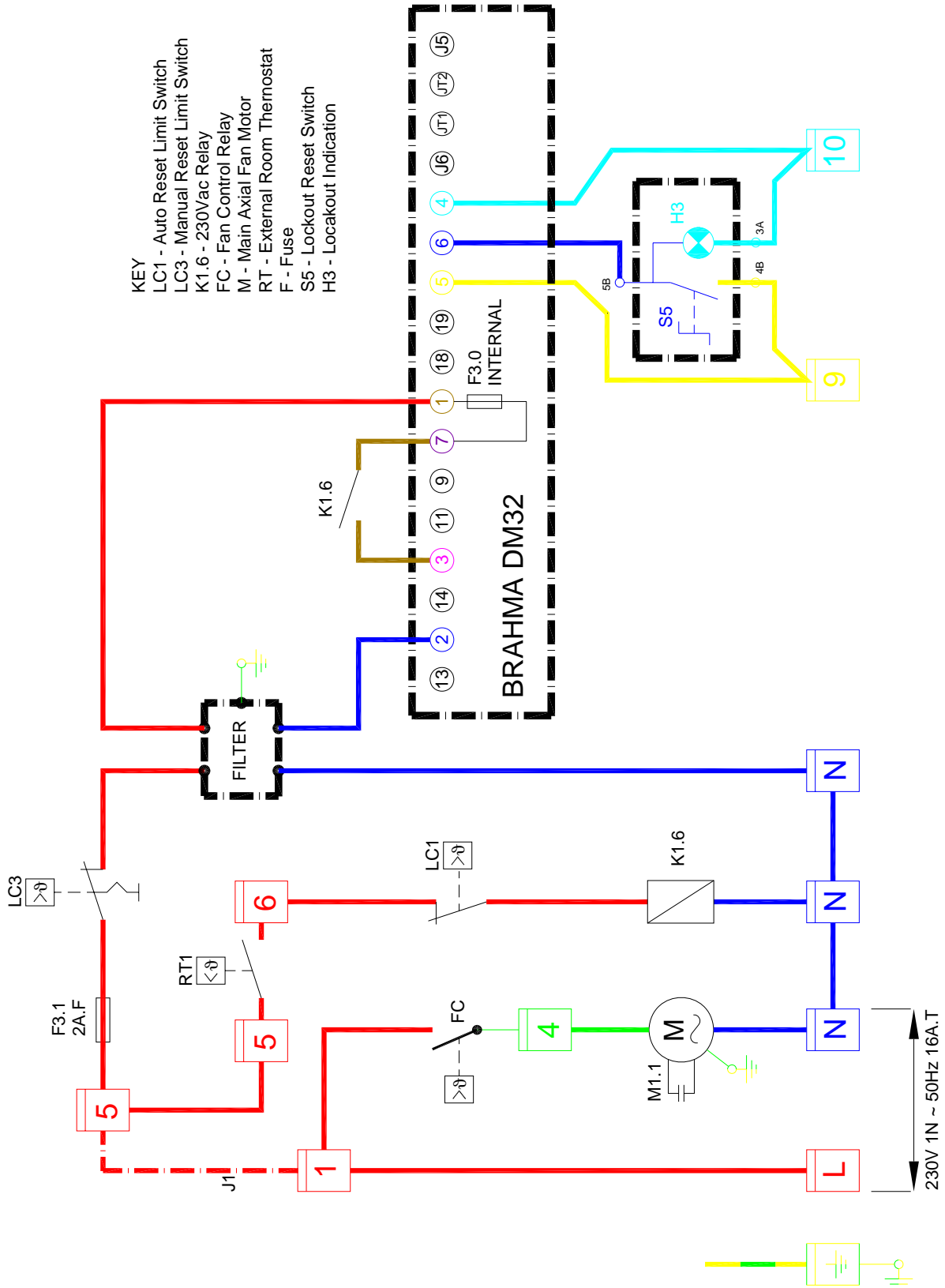
29. Tidy wires and check for tightness of wires and continuity.
30. Restore power to the heater and turn the gas back on
31. Light, following the instructions on the lighting instruction plate.
32. Check for proper operation.
33. Close and lock the access door.

# Wiring Diagrams

## CURRENT INTERNAL WIRING DETAILS



# REVISED INTERNAL WIRING DETAILS



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