

# **BENSON VARIANTE<sup>2</sup> TUBULAR HEATER**

## **NEW FAN CONTROL/LIMIT STAT RETROFIT**

### **NATURAL GAS (G20 I<sub>2</sub>H), PROPANE GAS (G31 I<sub>3</sub>P)**



## **WARNINGS**

Benson equipment must be installed and maintained in accordance with the relevant provisions of the Gas Safety (Installations and Use) Regulations 1998 for gas fired products. Due account should also be taken of any obligations arising from the Health and Safety at Works Act 1974 or relevant codes of practice. In addition the installation must be carried out in accordance with the current IEE wiring regulations (BS 7671), BS 6896 (Industrial & Commercial) and any other relevant British Standards and Codes of Practice by a qualified installer. All external wiring **MUST** comply with the current IEE wiring regulations.

The original Honeywell fan control/overheat limit thermostat is no longer available for the VR range of warm air heaters.

This bulletin describes the parts required and method of fitting a replacement fan control and overheat limit thermostat to these heaters.

The functions of the original Honeywell controller will now operate from two separate components, a 110° C limit thermostat and a fan control thermostat. The new limit thermostat capillary fits into the original Honeywell sensing tube hole. The new fan control thermostat is fitted to the controls chassis and has a built in pre-heater which automatically controls the fan on a timed basis.

**WARNING: Isolate both electrical and gas supplies before carrying out any work on this heater.**

For VRA models 12-145 and VRE models 12-60 a replacement fan control/limit thermostat kit part No. **33-67-986** will be required comprising of:

- 1 off 110° C overheat thermostat + bracket
- 1 off fan control thermostat + bracket
- 1 off capillary bracket
- 1 off cover plate
- 1 off each length of yellow, blue and white cable
- 1 off 'P' clip
- 7 off No. 8 BZP self tappers
- 6 off red insulated 6.4mm female crimps (loose)
- 10 off miniature cable ties

For VRE models 72-145 a replacement fan control/limit thermostat kit part No. **33-67-987** will be required comprising of:

- 1 off fan control/limit thermostat housing
- 1 off overheat thermostat
- 1 off fan control thermostat
- 5 off loose female insulated crimp terminals
- 1 off gasket

#### **VRA models 12-145 and VRE models 12-60** **1: Remove original Honeywell fan control/limit stat:**

Remove single retaining screw securing the lid of the original fan/limit stat as shown.

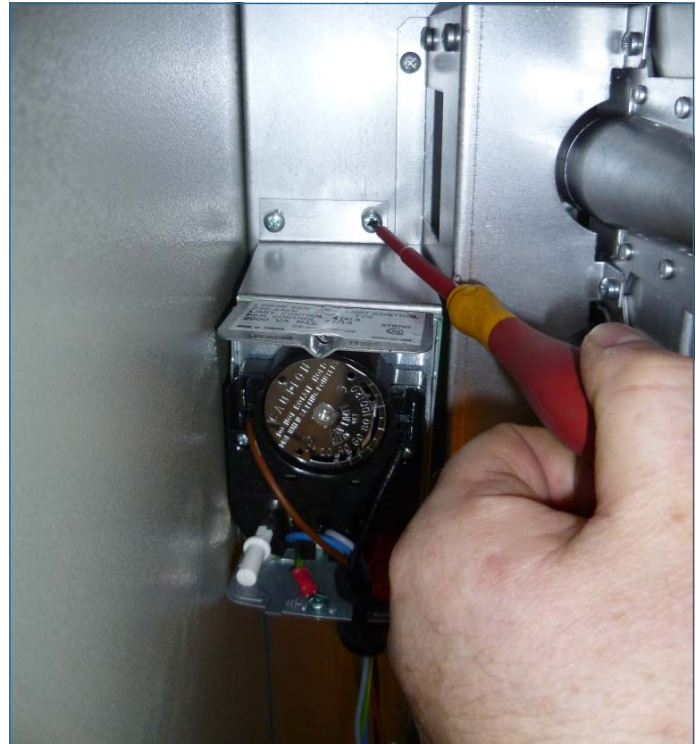


Disconnect the five cables (black, brown, grey, blue and earth) by releasing the quick connectors with a screwdriver as shown. Remove the earth completely.



Remove mounting bracket retaining screws (model sizes 72 and above) as shown.

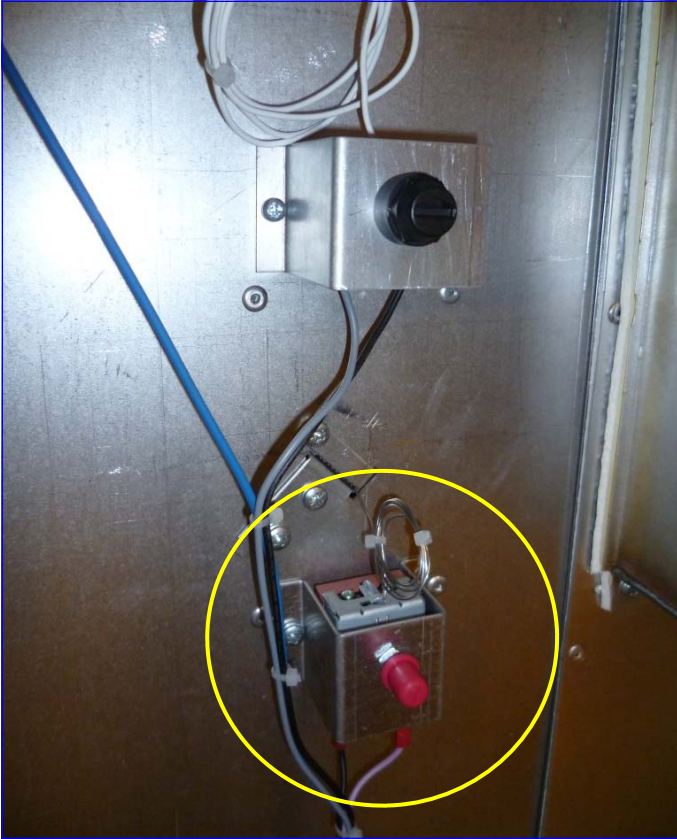
*Note: On model sizes below 72, the original fan/limit stat is screwed directly to the casing (no bracket)*



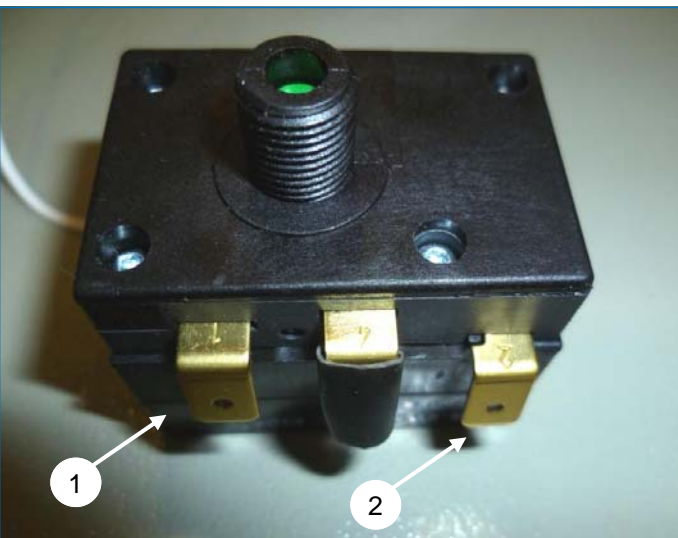
## 2: Fit new overheat thermostat:

Position new 110° C thermostat c/w bracket above existing thermostat as shown and fix in position using the screws provided.

*Note: Models 12 to 60 do not have the existing thermostat circled at the bottom of the photo.*



Re-route the original grey and black cables to the new thermostat and connect grey to terminal 1 and black to terminal 2. (see photo for terminal positions)



## 3: Fit capillary:

Insert capillary bracket into existing fan/limit control hole. Mark and drill two new holes. Fix in position, but do not fit screws at this stage.



Fit 'P' clip to capillary tube as shown



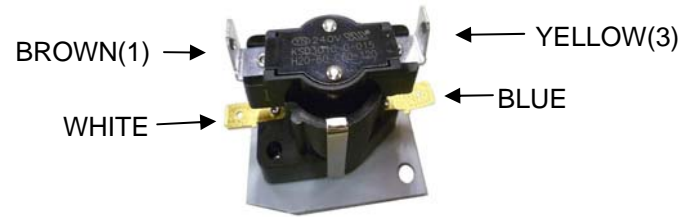
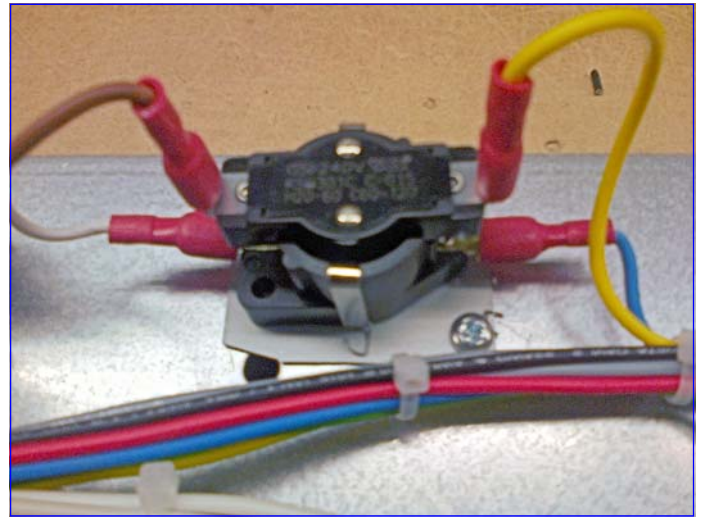
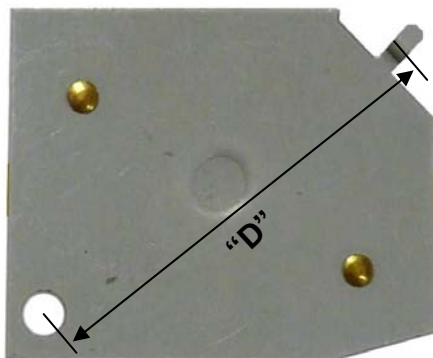
Fit capillary tube fully into capillary bracket. Fix cover plate in position using screws provided into holes already drilled ensuring the capillary tube fits into the slot as shown.  
 Finally drill the two outer holes as shown and fit screws provided, the top screw securing the 'P' clip.



**4: Fit new fan control:**

Looking at the rear of the replacement fan control thermostat mounting plate, measure the distance "D" shown in the picture.  
 Drill two holes distance "D" apart in a suitable clear area of the control panel base. (Control panel layouts vary depending on the heater size)  
 Fix in position as shown using the screw provided.

New fan control mounting plate rear view

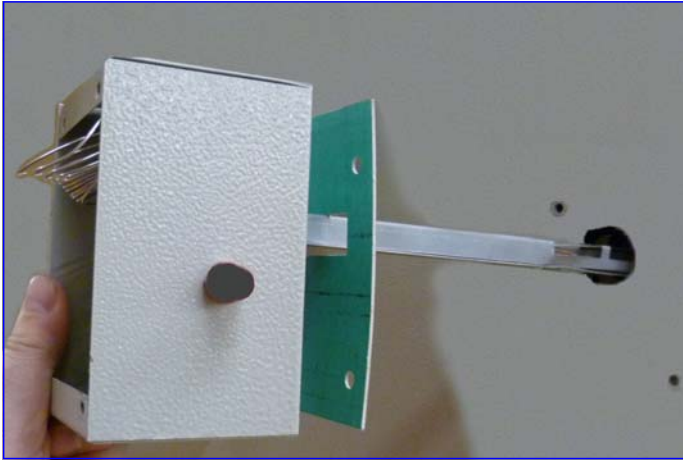


Wire as follows:

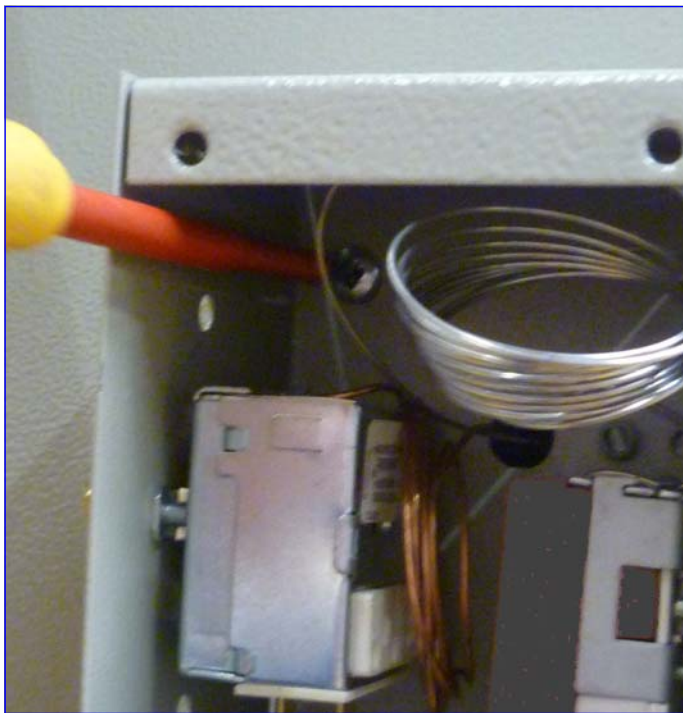
- Shorten the original brown wire and connect to terminal 1 on fan control.
- Completely remove the blue cable which ran from the original Honeywell to terminal 9 on the inner terminal strip (NOT the outer installer terminal strip).
- Replace this with the NEW yellow cable supplied, connecting between terminal 3 on the new fan control and terminal 9 on the terminal strip.
- Connect new blue wire between terminal 4 on the inner terminal strip and right hand gold coloured spade terminal on the new fan control
- Connect new white wire between terminal 1 on the inner terminal strip and the left hand gold coloured spade terminal on the new fan control.

**VRE models 72-145 only**  
**Fit new fan control/overheat thermostat :**

Remove original Honeywell thermostat.  
Slide gasket over sensing tube as shown.  
Fit new assembly into original hole.



Fix in position using the original screws and holes.

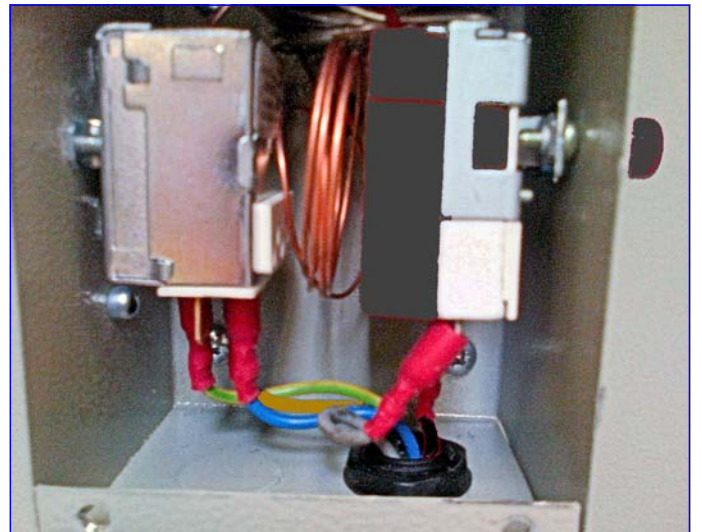


Fit the supplied female spade crimps to the original cables as shown.



Fit cable gland into new assembly and connect new fan control/limit thermostats as follows:

Fan control thermostat: Brown to terminal C  
Blue to terminal 2  
Overheat thermostat: Black to terminal 2  
Grey to terminal 1



Upon completion test the heater for correct operation.





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