Land Rover Fuel Burning Heater Controller V 2.0

www.lr-fbh.co.uk

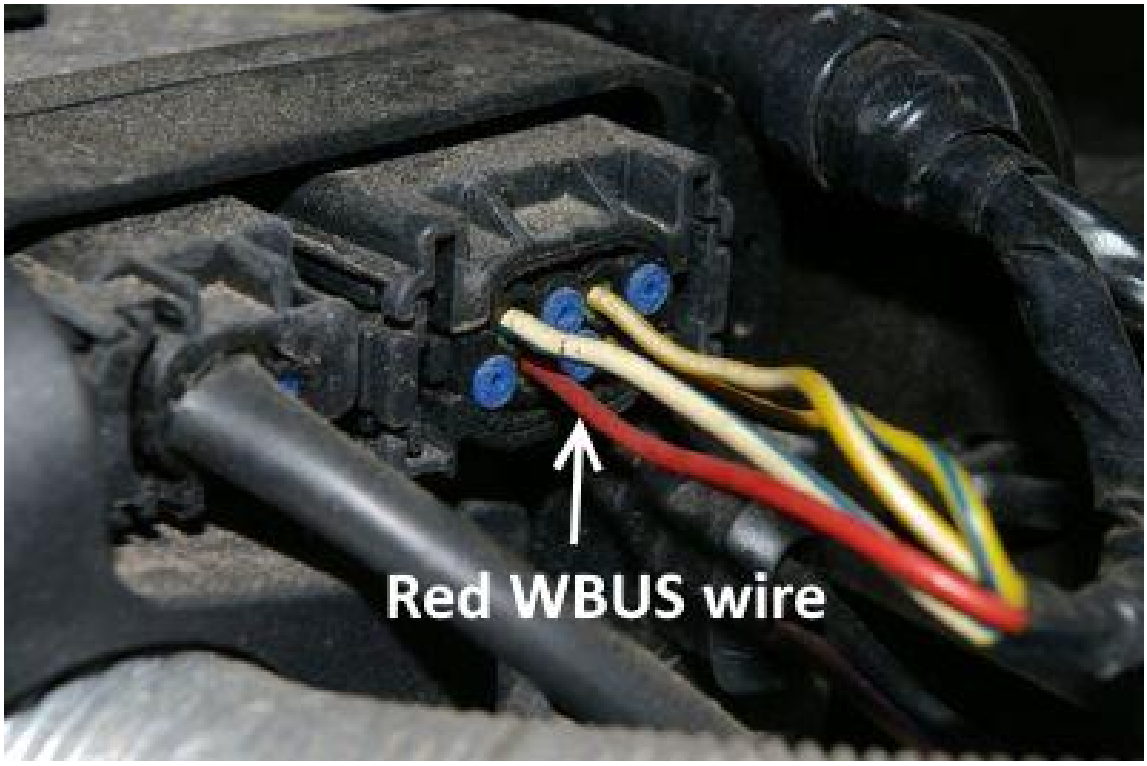
A copy of this manual and instruction videos are available from the above website.

Function:

The Fuel Burning Heater (FBH) Controller allows for the remote start of the FBH using the 3rd button on the key-fob remote by operating the headlights.

The car must first be configured to operate the headlights with the 3rd button.
To do this, turn on the ignition. Turn off and remove the key.
Press and hold the 3rd button whilst simultaneously flashing the headlights using the control stalk.

The FBH controller communicates using the WBUS connection. Older Discovery 3's & RRS had this cable fitted. It was not used, so was removed on newer models. Check to see if you have the RED wire on pin 2 of the 8 wire connector (See pic below).
The white wire from the FBH Controller has the connector pin pre crimped ready to install into the connector should the red wire is missing. If the red wire is present, you can either remove it from the connector & replace it with the white wire from the FBH controller, or cut it & join the white wire.



Operation:

The FBH Controller will operate the FBH for either 15 or 30 minutes depending on the internal jumper position, or to 75 degrees whichever comes first. It will then turn off.
This jumper is also used to clear any fault or lock-out on the FBH.

Jumper link OFF	=	FBH runs for 30 mins (default setting)
Jumper link ON	=	FBH runs for 15 mins

Using The FBH Controller:

To turn the FBH ON = Flash the headlights for between 1-6 seconds
To turn the FBH OFF = Flash the headlights for between 7-15 seconds

Clearing faults or lock-out on the FBH:
The controller is able to erase stored faults or a lock-out which may prevent the FBH from starting.
You should investigate the cause of the fault and only carry out the clear procedure if safe to do so.
If the FBH still fails to start after clearing faults, the FBH fuse should be removed until the unit can be repaired or replaced.

To Clear the FBH Faults:
Remove the cover from the FBH controller. Locate the Run Time Select Jumper. Remove and replace the jumper across both pins 3 times within 5 seconds.
The Awake LED will light, and the Pump Running LED will flash 3 times for 5 seconds. This indicates the reset has been sent.
When both LEDs go out, the FBH will be clear of faults and ready to use.
See the Video explaining this reset procedure in more detail on the website.

W-Bus Communication Error:
The controller will detect the presence of a communication problem on the W-Bus wire by several fast flashes of the Pump Running LED after a Start, Stop, or Error Clear command is sent.
The connections of the white wire should be checked.
See the video showing this in more detail on the website.

Ignition Prohibit:
The yellow ignition signal wire prevents the FBH from starting should the headlights be flashed when the vehicle is in use. However, if the FBH is already running when the car started, it will continue to run for remainder of the pre-set time, or until 75 degrees is reached whichever comes first.

Installation:

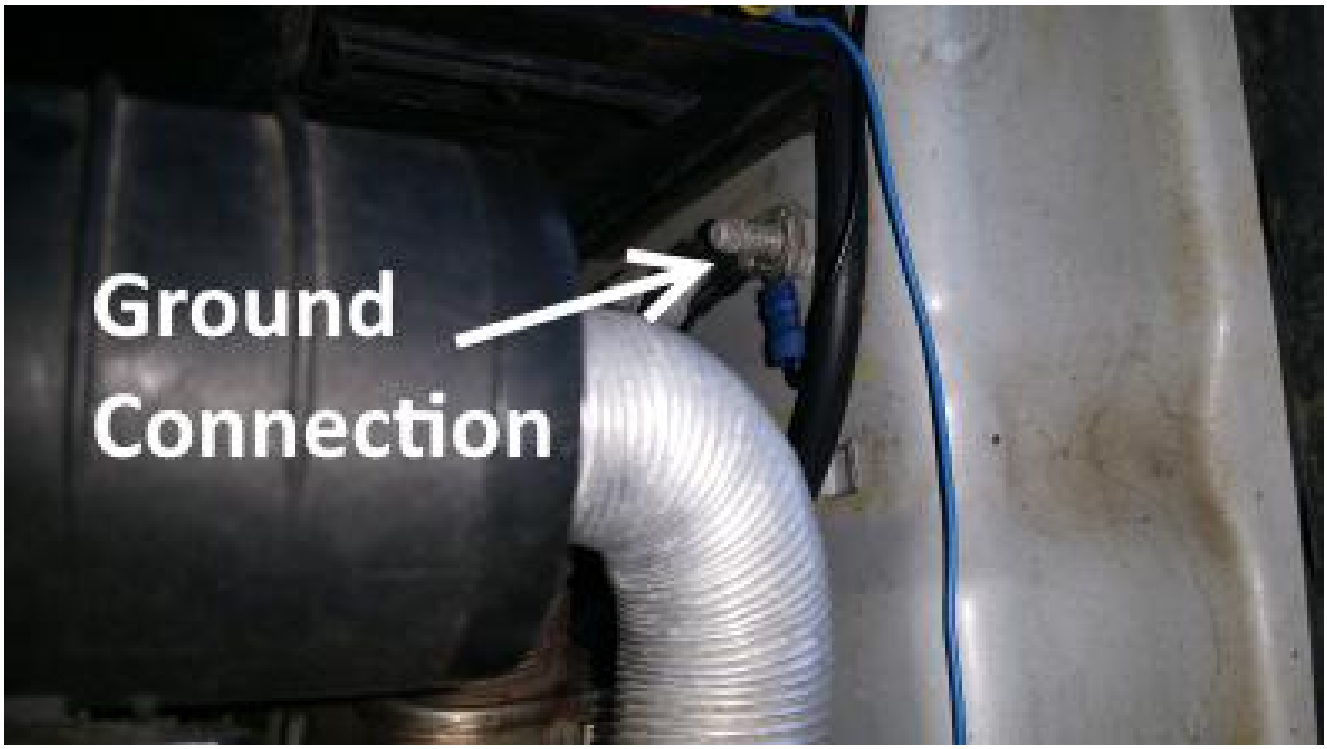
The FBH Controller should be fitted in the space to the front of the engine bay fuse box / battery.

*****Carefully observe the wiring connection. Incorrect wiring could damage the FBH Controller, or the vehicle itself*****

Red Wire with In-line Fuse, (Ring crimp fitted) --- +12v Positive Connection to Battery
Black (Ring crimp fitted) --- - Negative (Ground)
Yellow --- Ignition Live Signal
Blue --- Headlight Live Signal
White (FBH connector pin fitted) --- WBUS Data Line to FBH Pin 2

+12v may be taken from the main Bus connection as shown below. A ring crimp has been fitted for this purpose. Connect the **Red wire containing the in-line fuse** here.

A ground connection stud for the **Black wire** may be found between the FBH and inner wing as shown below:



The **Yellow wire** should be connected to a terminal which becomes live when the ignition is on.
Some vehicles have an unused relay base pin to serve this purpose as shown below. Use the supplied spade crimp to fit the relay base.

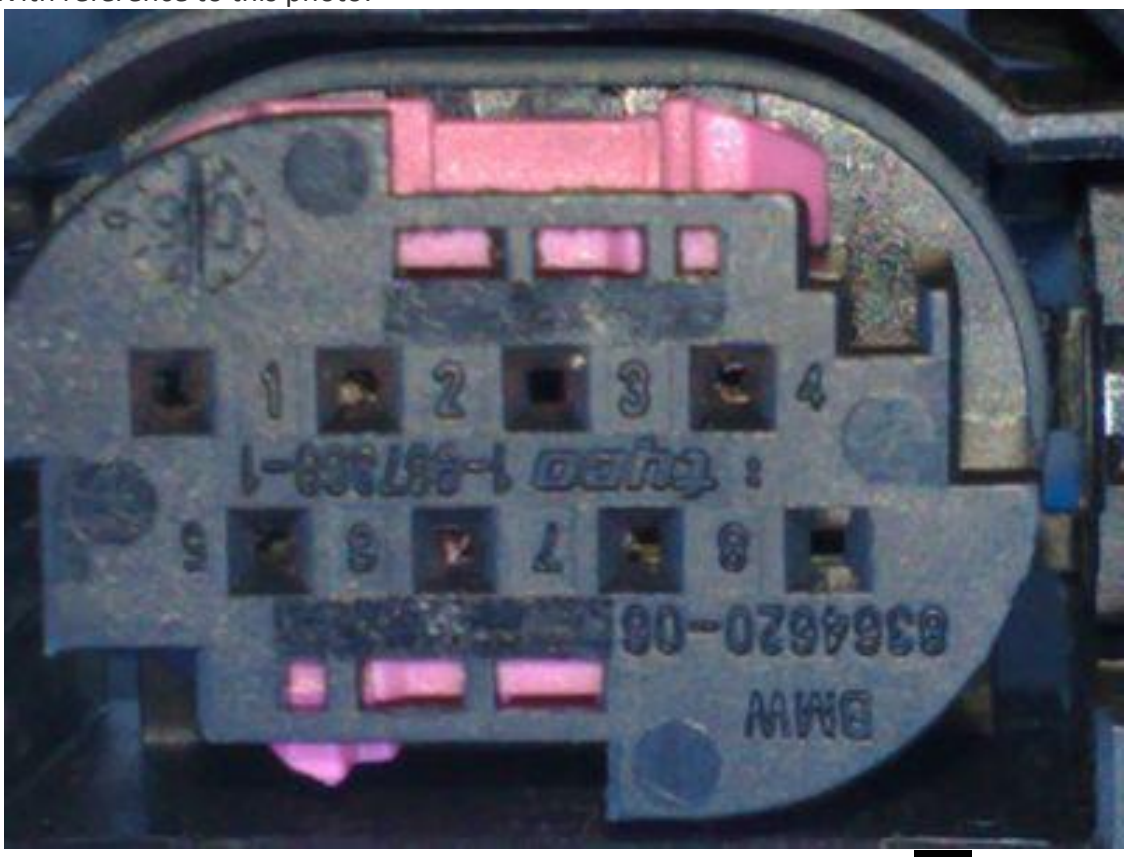
It is recommended the **blue wire** be left to last in order to test the FBH heater is working correctly before cutting into the headlight loom.
Once the other controller wires are connected and the ignition is off, the blue wire may be touched onto the Positive (+) battery terminal for approx 2 seconds. The FBH should start and run. Touch the battery terminal again for approx 7 seconds to stop the FBH. The FBH will then enter cool down cycle for about 2 mins before stopping.

The **Blue wire** should be spliced into the nearside headlight connection pin 11 Blue/Pink wire. (Blue/Orange wire on Left Hand Drive Vehicles)
This can be done either with the supplied blue T-Tap quick connector, or a soldered and heat-shrink connection to prevent water ingress.

Fitting the White Control Wire

Please see the video on the website showing this in more detail.

1. Remove the 8 pin connector from the FBH by squeezing the two side clips and pulling away from the FBH.
2. From the connecting face (not the side with the wires emerging), using a stiff thin piece of wire or an opened out paperclip **gently** push the rubber blanking plug out of the **pin 2** hole.
3. With reference to this photo:



Above the number 3 pin marking is a pink slider, which looks like this: - - ·

4. Using your straightened out paperclip again **gently** press into the right hand side of the middle 'dash' (exactly above the number 3) so that the paperclip is at 45 degrees and pushing towards the 'dot'.
5. The pink slider should move a couple of mm until the latch bump that was at the right of the second dash ends up in the dot. The slider is now in the "unlocked" position.
6. Look for the barb on the terminal you're about to fit. When you fit it, the barb points towards the pink slider.
7. Fit the crimped pin into hole number 2 from the wire side. You will hear it "click" when it is correctly fitted. You may need to push the green rubber seal into place.

Using your straightened out paperclip **gently** press into the 'dot' so that the paperclip is at 45 degrees and pushing towards the middle 'dash' to return the pink slider to the "locked" position.

Ensure all cables are well away from the FBH hot exhaust, and tied securely.

Disclaimer:
This is a “self-install” device. You should be suitably qualified to carry out the installation or use a professional to do it for you.
By using the unit you understand the FBH may be running unattended. The FBH should be in good operating condition with no faults.
It is recommended the FBH should be initially operated for a full cycle whilst supervised and checked for fuel or exhaust leaks.