

## Brake Switch to Relay 'Assisted' Conversion

I have read several threads on various sites regarding problems with Hydraulic Brake Switches on other 'Classic' cars and decided that I should investigate a solution only to find that at the start of this season my own car suffered with a 'Brake Switch Failure'.

### What happened?

The brake lights fail to operate unless 'extreme' pressure is exerted on the brake pedal suggesting that the switch was failing.

### Where is it?

The switch in my car (2002 4/4) is mounted on the right hand chassis rail inside the engine bay towards the front by the steering rack. Basically what appears to be a large 'Nut' with two spade terminals and connectors in line of the brake hydraulic pipes. The switch itself is relatively straight forward to replace but it appears the replacements are more prone to early failure than the original components. I had sourced an 'Intermotive 51610' from a local Motor Factor as a particularly well recommended variant but even this was described as a running replacement. So an alternative long term solution was sought...



### Foot Pedal Switch

I have seen various descriptions of using micro switches activated from the brake pedal (as in newer Morgans) but felt that this was a bit of a 'faff' to fit and involved cutting carpets and struggling in the foot well and I also felt that the components might be prone to problems in the long term.

### The 'MG' fix...

Whilst searching the web I came across this great link that describes extremely well a fix used for MG's that have the same problem – [www.mgb-stuff.org.uk/lights2.htm](http://www.mgb-stuff.org.uk/lights2.htm). Basically it is removing the heavy current switching through the switch (I wonder if the use of High Level Brake Lights has affected the durability of these switches and is the root of the problem)

### Morgan modifications

I decided that this was the solution I would adapt for my car. The description suggested use of a 30 Amp relay with diode protection that appeared to be the same as the spares that I already carry for the Fuel Pump and ECU relays so no extra spares will be required (☺!). (5 Pin Motronic Relay from Euro Car Parts Part no. 450 110 0050 I feel a more rugged replacement for the Bosch version).

Wiring is relatively straightforward and the only difficulty was deciding a location for the relay that would mean that it was protected and convenient (in case of failure!). The obvious location strangely appeared to be the existing relay/fuse box attached to the bulkhead as I had always felt that there was 'spare room' to place another relay. But how? On investigation it was found that the original relays use a bracket device that is modular and can be 'plugged' together similar to toy building bricks. These were sourced from [www.thewiringproject.co.uk](http://www.thewiringproject.co.uk) Ref: IEM-

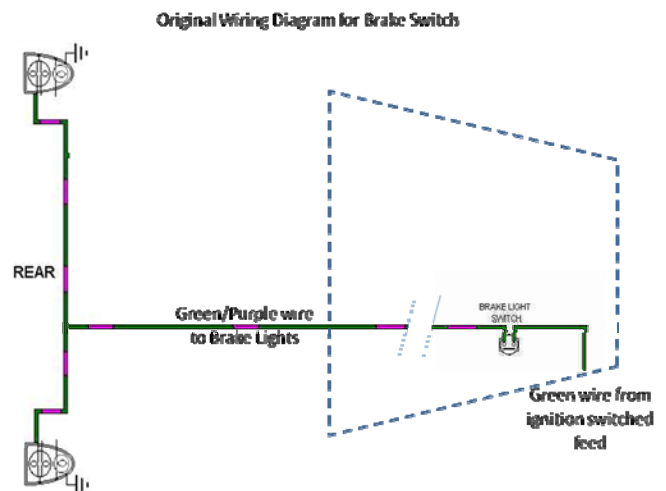


RELH45B/1 at less than £5 with postage and packing (not forgetting the matching spade connectors). By juggling the relay mounts around (plugging them together!) and some 'fettling' of the brackets together with adjusting the fixing holes I succeeded in squeezing them all in very neatly in the same box and gave me an excuse to give it a bit of a polish as well as add a revised identification chart and rubber trim.



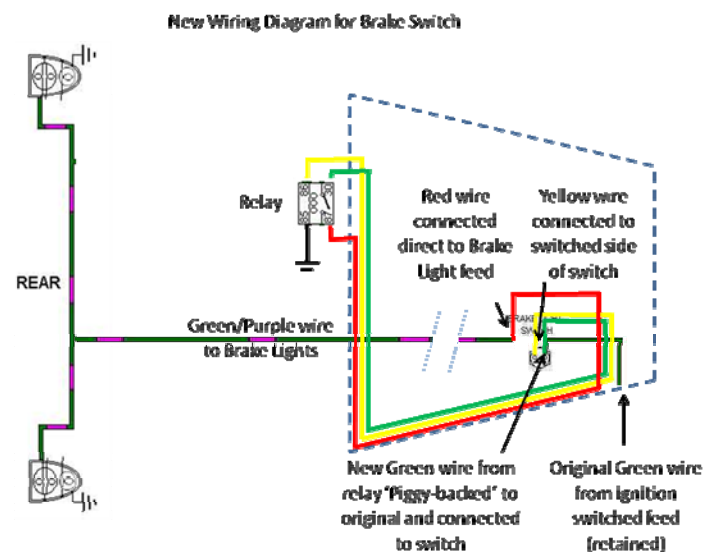
## Wiring

The original wiring is very simple (as you would expect)..



For the new wiring from the new relay holder, make a mini loom that will follow the existing lighting loom to the front of the car along the right hand side of the engine bay, consisting of four wires. I used Black, Yellow, Red and Green running from the Relay holder as diagram below. Terminate the Green wire with a 'Piggy Back' spade connector, the yellow with a 'Female' spade connector, Red with a 'Male' spade connector and Black to a suitable earthing connector.

The diagram below shows the connections.



*Note: By using these connectors if for any reason the relay fails it is possible to quickly go back to the original wiring by reinstating the connections until the relay can be replaced.*