



MGBGT V8 Halogen headlight conversion with relays

Following our recent V8NOTE572 on installing an H4 Halogen headlamp upgrade to replace the original sealed beam lights, a further upgrade involving installing twin relays to remove the heavy electrical load on the ageing main lighting switch and the stalk dip/main beam switch was highlighted as a very worthwhile but subtle upgrade. Here Peter Spurr contributes a note describing his installation of the relays using individual parts purchased from auto electrical suppliers.

Halogen headlights

The photo above compares the main beams with Halogen bulbs and the original sealed beam units. The offside headlight is a Cibié H4 unit with an Osram Nightbreaker Laser bulb. The nearside has the original sealed beam light. The improvement is obvious.

Replacing the headlights is covered on page 40 of the Driver's Handbook:
Removal:

1. Prise off the outer chrome ring from the bottom. It may well be tight and the surrounding paintwork will need to be protected from the lever.
2. Undo the three screws holding the inner ring and remove the ring.
3. The sealed beam light can then be withdrawn and the connector removed.

The only Cibié headlight units available had integral sidelights. The photo below shows that the sidelight holder fouls the headlight bowl. If the integral sidelight is needed, a slot can be cut into the bowl. If

not, the sidelight fitment can be removed and the hole taped over (see right).



Fitting is the reverse of removal. Although the new unit fits into exactly the same position as the old one, it may not have exactly the same alignment; a check is advised.

Relays

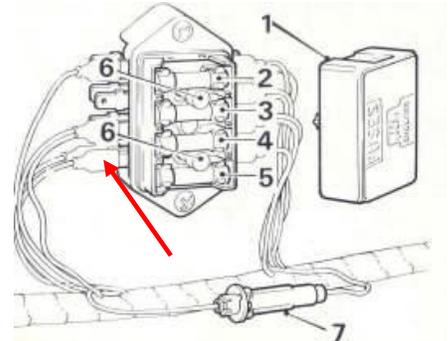
The advisability of fitting relays is covered in detail elsewhere. It boils down to an electrical load of 10 amps being fed through the very small contacts on the indicator/dip stalk switch. Approaching 50 years old in most MGBV8s, protecting that switch using the relays is a sensible upgrade.

Third party relay kits are available. At the time of writing in January 2020, Moss Europe has twin relays all pre-wired for installation at £36.

Another option is to buy the relays and to wire them oneself. At the time of writing, a six-pack of five terminal fused relays was available for £12 on the internet. Two are used for the installation and the others can be carried as spares in case of failure.

The ideal set up is discussed in other V8NOTES. The practicalities of access to existing wires, space to mount the relays and the wish to keep as much of the original vehicle intact lead to the following:

- 1) Mount the relays on the offside inner wing near the brake/clutch box.
- 2) Take power for the lights from the brown wire feed at **position 7 in the fuse box** – see arrow in the diagram. Not to be confused with fuse 7.



- 3) Earth both relays using an existing earth wire.
- 4) Unplug the wire running into each 4-way connector at the front of the car under the slam panel.
 - a) Original wire from the indicator stalk switch is used as the relay trigger.
 - b) The relay output is used to power the lights via a new wire run to the 4-way connector



Wiring for the relays

A wiring diagram is set out at the end of the note.

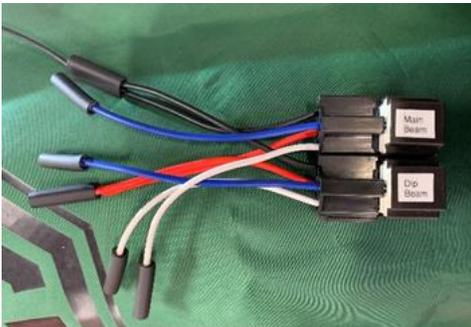


Installation

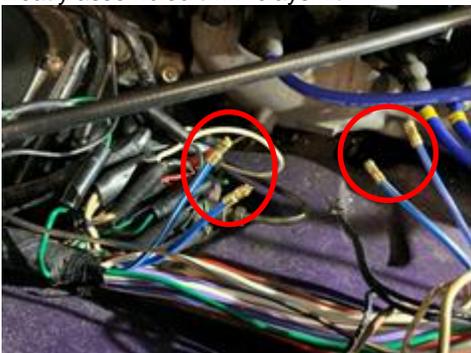
The tools required are: wire snip, bullet connector blocks, bullet wire ends, wire stripper (makes the job easier), bullet crimper, connector insertion tool (makes the job easier), thin (5 amp) and thick (17 amp) wire in two colours and electrical tape. The installation step by step is:

Step 1 - Disconnect the battery to prevent inadvertent short circuit, disconnect the earth lead first.

Step 2 – Prepare the relays - each of the wire ends needs a bullet connector. The two earth wires (black) from terminal 85 are joined at a double connector block. The two power supply wires (red) from terminal 30 are also joined at a double connector block. White wires from terminal 86 and blue wires from terminal 87 have single connector blocks.



Neatly assembled twin relays kit



Step 3 – Follow the wiring loom to the 4-way connectors at the front of the car. For each connector, unplug the single wire coming from the dip switch. Use a new bullet connector to attach a thin wire to it, run back to the appropriate relay, the extension of the blue/white wire to the main beam relay, and the extension of the blue/red wire to the dip beam relay.

Step 4 – Cut two lengths of thick wire and attach bullet connectors. Plug these into the 4-way connectors where you removed the single wire. These new wires are also run back to the appropriate relay. You should now have four wires running back to the relays from the front of the car to the relays. Route them alongside the existing loom.

Step 5 – Prepare the power supply. Clip the brown power supply near position 7 on the fuse box, add bullet connectors to the wire ends and join them with a double connector block. Cut a length of thick brown wire which is long enough to go from the connector block at the fuse box to the connector block at the relay end. Add a bullet connector to each end.



Step 6 – Prepare the earth lead. In this installation, the existing earth lead at the P clip securing the wiring loom near the relay is used. Clip the existing earth wire, add a bullet connector to each end and join with a double connector block.



Step 7 – Mount the relays. Each of the relays has a mounting hole. Mark the centre of each on the offside inner wing and drill a hole appropriate to the size of the self-tapping screws to be used. Before mounting the relays, ensure that the bare metal resulting from drilling is adequately painted/protected. Mount the relays using self-tapping screws.

Step 8 – Connect the power and earth supplies:

- 1) The brown wire goes from the fuse box connector block to the red wire connector block at the relay end. If the relays are not fused, use an inline 20amp fuse.
- 2) The black wire connects to the earth connector at the P clip.

Step 9 – Connect the switching and output wires

- 1) The **blue/white** extension wire joins to the white wire on the main beam relay.
- 2) The **blue/red** extension wire joins to the white wire on the dip beam relay.
- 3) The wire from the 4-way connector on the blue/white side joins to the blue wire on the main beam relay.
- 4) The wire from the 4-way connector on the blue/red side joins to the blue wire on the dip beam relay.

Step 10 – Check to ensure that all connections are secure and each wire is connected correctly.

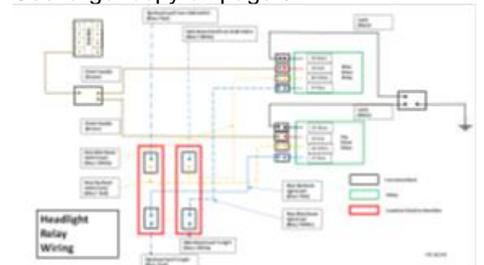
Step 11 – Reconnect the battery. To prevent inadvertent short circuit, reconnect the positive lead first.

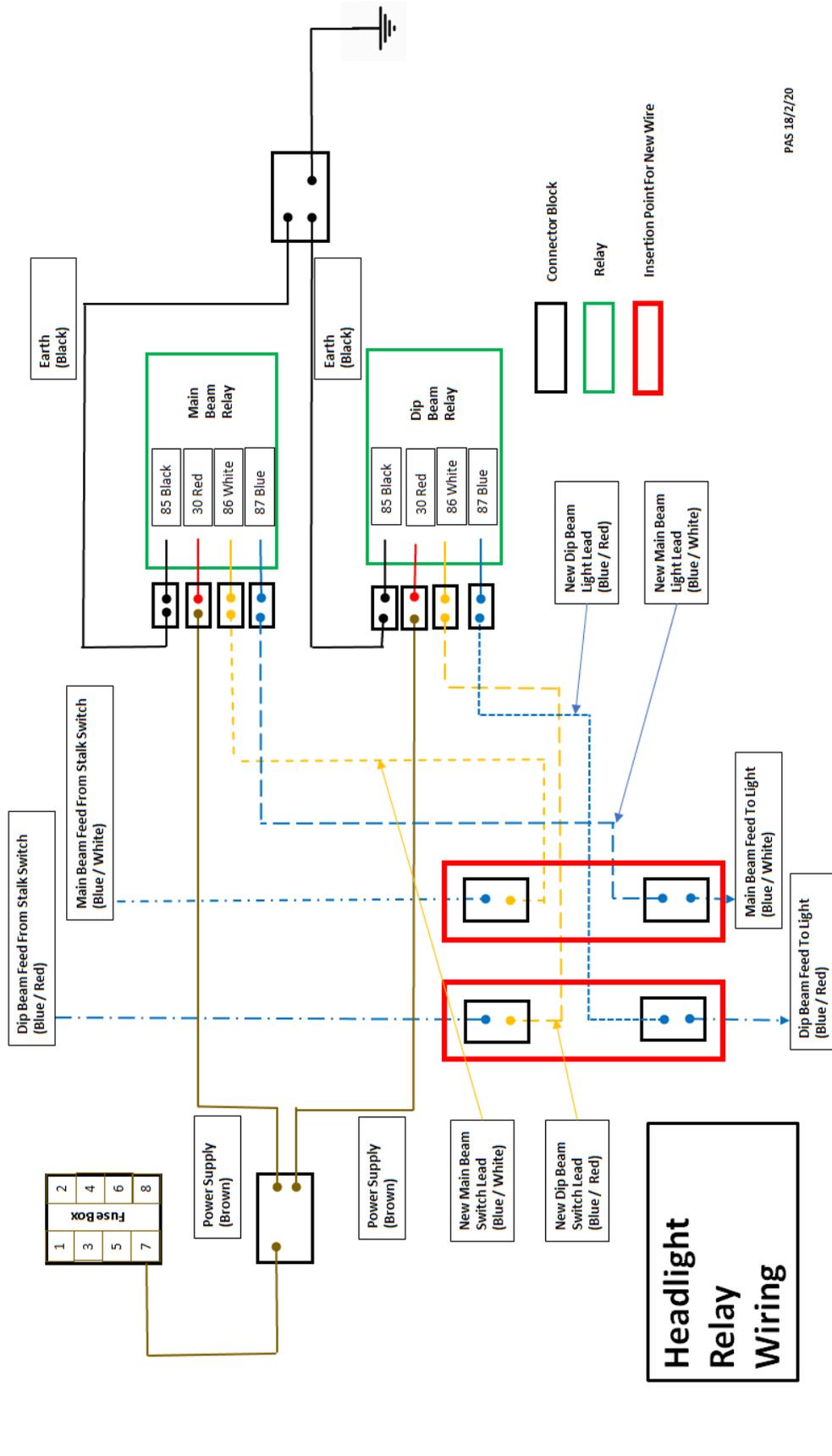
Step 12 – Check the lights. Switch on the headlights and check that they work in dip, main and flash modes.

Step 13 – Re-cover the wiring loom. If everything works as required, bind the new wiring to the wiring loom with electrician's tape.

Wiring diagram

See larger copy on page 3.





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