Installing Daytime Running Lights in the headlamps of an MGBGTV8

Chris Bound is carrying out an MGBGTV8 Conversion and has added Daytime Running Lights (DRLs) as an upgrade to his headlights. Here Chris describes how he installed them.

There has been considerable interest recently in adding DRLs to the MGB and derivates like the MGBGTV8, mainly in response to concerns about the **"relative visibility"** of such a small car relative to large modern vehicles most of which now have bright DRLs as standard equipment.

Dedicated daytime running lights

Daytime running lights (DRLs) are purpose-made, low-wattage lights that can be fitted to a vehicle and used during the day to improve the visibility of a vehicle to other drivers as well as pedestrians, cyclists and other road users. They do not need to be operated manually as they automatically activate when the engine is started and turn off when the engine stops or when headlights are switched on at night. DRLs are necessarily bright to ensure they are visible in the daytime but not so bright that they will dazzle others. However they are too bright for night time use and are not intended to illuminate the road in the dark. If used at night they will cause dazzle and discomfort to others and so drivers should always switch to their position lamps or headlamps at night.

Evidence supporting DRLs comes from research which has shown that DRLs are likely to reduce multiple vehicle daytime accidents and fatalities by up to 6% once all vehicles are equipped.

Retro-fitting DRLs

There is no requirement to retro-fit DRLs on vehicles not fitted with them as standard. If you decide to retro-fit DRLs you should ensure they have been approved to the correct European legislation standards. This can be confirmed by checking that the approval mark embossed on the lamp contains the letters "RL". Ideally retro-fitted DRLs should be installed such that they activate automatically when the engine starts and switch off when headlamps are turned on. If this is not the case then you must ensure that you manually turn DRL off at night as they will cause dazzle and discomfort to others if used in low ambient lighting conditions.

What are the DRL options for an MGBGTV8?

Several options for DRLs have been identified by members of the V8 Register of which the most popular appear to be:

- **Adding LED strips** below the bumper.
- **Fitting replacement headlamp units which incorporate a pilot light fitting which can be used for the DRL**. Although these headlamp units were installed on rubber-bumper cars in order to provide a "side" or "parking" light, they are easy to fit to earlier chrome bumper cars. Once installed, they can be fitted with a bright LED bulb in the pilot light fitting which can then be wired up as a DRL. The original side-light within the indicator unit on a chrome bumper car remains unaltered.

Replacement 7" H4 Halogen headlamp unit with main and dip beams with sidelight, metal reflector, plastic backshell, gasket and wiring harness. 'E' Marked. No Rim. Fitted with 12 volt Halogen bulb 60/65 watts and 5 watt sidelight bulb. Dips to the left hand side of the road.

The DRL installation using a rubber bumper replacement H4 Halogen headlamp unit can only be fitted to a chrome bumper MGBGTV8 because otherwise where would you have the sidelight for a rubber bumper model as the lamp in the rubber bumper is only an orange indicator lens and not a combined sidelight/indicator?

Need for a relay to operate the DRLs

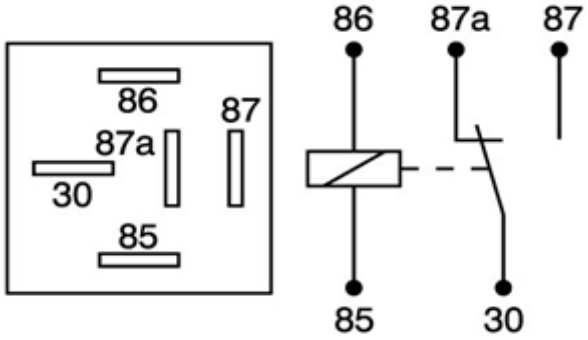
The operating requirements for DRLs are that they come on automatically whenever the ignition is on and that they turn off when the side lights or headlights are turned on. This can be achieved quite easily using a 5-pin changeover relay such as the one shown above.

The 5 pins on the relay are usually laid out and numbered as follows: **Terminal 30** is the main power supply to the unit and **Terminals 87 and 87a** are for the feed(s) from it.

Terminals 85 and 86 power the solenoid which operates the switch.

In its normal (unpowered) state, **Terminal 87a** will be live and **Terminal 87** will not. When power is applied to the solenoid, the switch clicks over and **Terminal 87** becomes live instead of **87a**.

Of course, if you happen to have (or can get your hands on) a 4 pin "Normally Closed" relay, that will work just as well. The wiring instructions that follow will be the same and you can ignore any mention of Pin 87 as there won't be a Pin 87! Be aware, however, that most 4 pin relays are "Normally Open" and are not suitable for this job.



Locating the relay near the fuse box

In the original MGBGTV8 fuse box, mounted on the offside inner wing (see below), there are four fuses. Counting from the top to the bottom of the fuse box, they are:

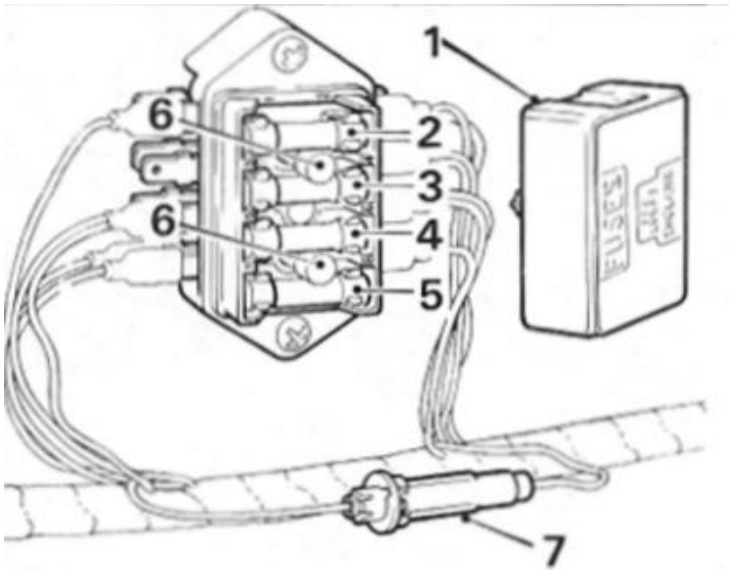
Fuse **2** – Left hand parking and tail lights.

Fuse **3** – Right hand parking and tail lights.

Fuse **4** – Circuits which are only live when the ignition is on.

Fuse **5** – Circuits which are permanently live, even when the ignition is off.

The relay can be fixed to the inside of the front offside wing, somewhere close to the fuse box.

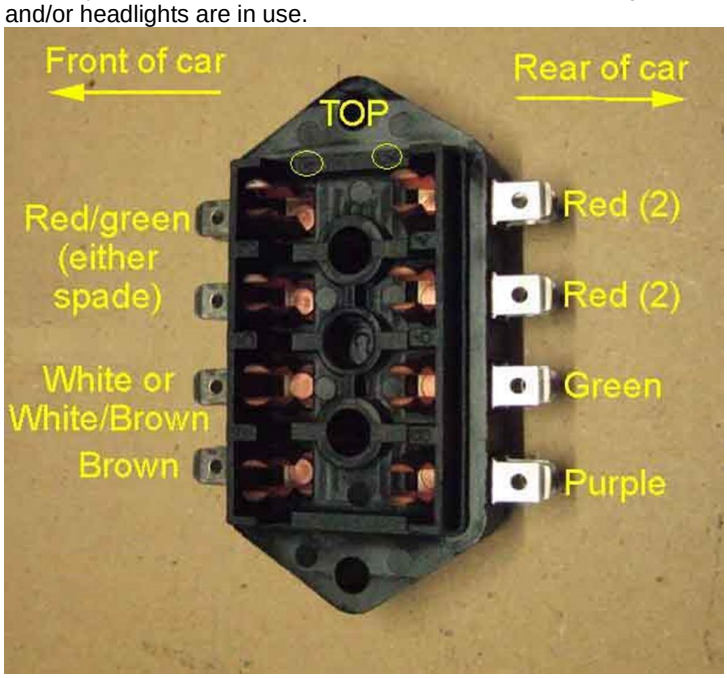


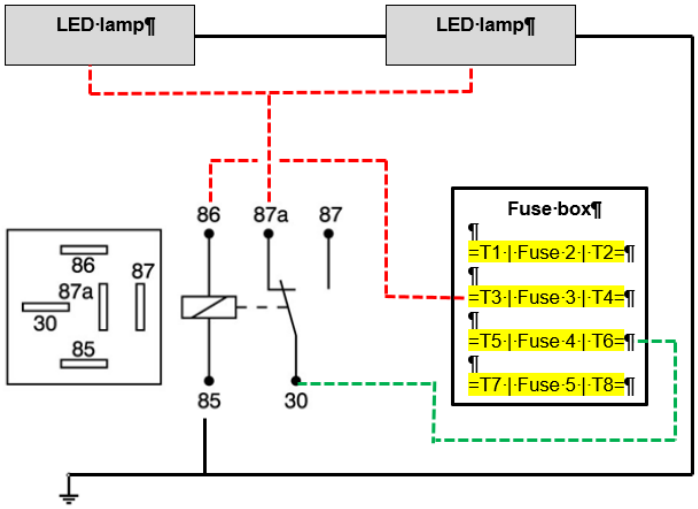
Wiring diagram for the relay and DRLs

The above diagram follows the numbering convention used in the original Driver's Handbook supplied with the car, where the four fuses are numbered from 2 to 5, counting from the top. Terminals on the fuse box are numbered from 1 to 8, with odd numbered terminals (towards the front of the car) carrying power to the fuses and even numbered terminals (to the rear) being the fused supplies.

To wire up the DRLs, simply run a wire from Terminal 6 (Fuse 4) to Terminal 30 of the relay. In an ideal world (although it's not vital), you should use green cable for this connection as this is the colour used for circuits that are live when the ignition is switched on. Next, run a wire from Terminal 87a to the live side of your new LED lamps and, if they are not already earthed through their fixings, connect the negative side of the lamps to the body of the car. You can ignore Terminal 87, as this is not used. To prevent anything accidentally coming into contact with it, I suggest that a fully insulated connector is fitted over it. If you want to test your new lights at this stage, you can switch on the ignition and they should come on.

Now run a wire from a spare Terminal 1 or 3 on (Fuse 2 or 3) (it doesn't matter which, but Terminal 3 will probably be empty) and connect it to Terminal 86 on the relay. Finally, connect Terminal 85 to the body of the car (earth). It is this last bit which will energise the relay and will switch the DRLs off when the car's side lights and/or headlights are in use.





Finally, check that everything is working as it should and enjoy the reassurance of knowing that drivers of "Chelsea Tractors" will have more chance of seeing you!

Where to get relays and other materials?

Chris Bound adds "I usually buy electrical stuff for the car from Auto Electric Supplies Ltd (or AES for short) and always keep a printed copy of their catalogue to hand.

Website: www.autoelectricsupplies.co.uk

The relay that I used (or would use) is item **140206** here:

https://www.autoelectricsupplies.co.uk/product/174/category/36