



Member Tech Tips

Improving the Drivability of the Overdrive Equipped MGB by Bob Bentzinger

Back in 1974, when I ordered my MGB Roadster at the local BMC dealership, I ordered the Tundra model with wire wheels but I did not order the overdrive option. I had no idea what overdrive was for and it was an expensive option. I went home to wait six weeks for my car to arrive. A couple of weeks after I ordered my LBC the salesman called me with a "Good news/Bad news" story. The good news was that my MGB had already arrived. The bad news was that it had the overdrive option (\$300 in 1974). At this point, I was salivating uncontrollably so I bit the bullet and accepted the car as equipped. Little did I know what a happy accident it would be. The LH overdrive makes the MGB a much more pleasant car to drive, especially on the highway. I have never regretted spending that extra \$300!

Having said that, one of my pet peeves involves my beloved overdrive. Let me explain. The standard overdrive circuit is simple, using a driver controlled switch in series with a gearbox switch. With both the driver controlled and gearbox switches closed 12 Volts is applied to the overdrive solenoid. On my car, overdrive operates in both third and fourth gear. Unlike most folks I actually use overdrive in third gear, when I engage it cruising at 40 - 45 MPH. However, I almost invariably forget to disengage it at stop lights. When the light turns green, I proceed blissfully until I shift into third when I am rudely reminded of my error. I quickly fumble to disengage overdrive, lest my fellow motorists discover my mistake and my prowess as a man and an LBC driver be damaged beyond repair. Finally, when I got laid off from my electrical engineering position of 29 years, I had the time to address the overdrive issue. I wanted to increase the "drivability" of the car by having the overdrive drop out at stop signs, thus avoiding my third gear embarrassment. The solution I arrived at is a device called "toggle flip-flop". I tried to keep it as simple and reliable as possible, so it is implemented with four relays and a resistor (resistor value is approximately twice the relay coil resistance). I used relays from a Dodge Stratus because of their relatively small size, but almost any single-pole double throw (SPDT) relay can be used. The relays fit neatly above the driver's side under dash liner. My solution also requires a momentary driver controlled switch, so I modified the column mounted switch on my 1974 MGB to be momentary.

This turned out to be fairly simple, requiring the removal of a brass detent piece in the switch housing and the addition of an external spring (see photo). This modified switch reminds me somewhat of an F1 paddle shifter (only much cheaper!) with the added benefit of feeding my fantasy of defeating Tazio Nuvolari in the final seconds of the Targa Flori (yes I realize the inconsistencies, but it's MY fantasy!). I have also successfully modified the earlier dash mounted switch to be momentary but I have not attempted this modification on the later gearshift mounted overdrive switch. I needed to add two extra wires to the wire harness going to the gearbox switch. This is because the power for the flip-flop circuit comes through the gearbox overdrive switch (see schematic).

The modified overdrive operation is straight forward. In third or fourth gear, when the overdrive column switch is first closed and released, the flip-flop toggles to the "on" state and the overdrive is

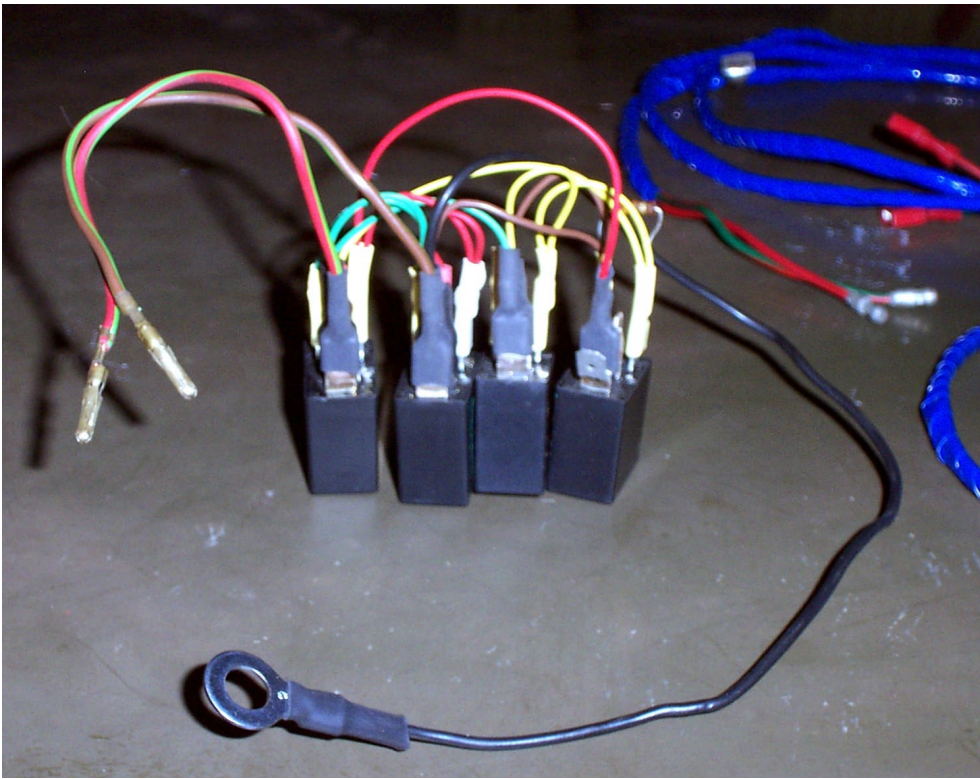
engaged. The next time the switch is cycled, the flip-flop toggles to the "off" state and the overdrive drops out. This on/off cycle repeats indefinitely. The important feature is that when the overdrive is left in the engaged state and the gearbox is shifted into neutral at a stop light, power is removed from the flip-flop which causes it to return to the "off" state, thus preventing my embarrassment.

This works because the ignition switched 12 VDC (white wire) goes through the gearbox switch to supply power to the flip-flop circuit instead of to the overdrive solenoid. Power for the overdrive solenoid comes from a relay in the flip-flop circuit. The hardest part of the installation was rewiring the gearbox switch which may require dropping the rear transmission mount to gain access to the switch. I did not do this, choosing instead to get to the switch using a spring loaded "grabber" through the shift lever hole to rewire the switch (This requires saint-like patience). I field-tested the overdrive operation on a recent St. Louis MG Club Fall Color Tour and it performed flawlessly. It does require a bit of adjustment in driver thinking but I soon had it down.

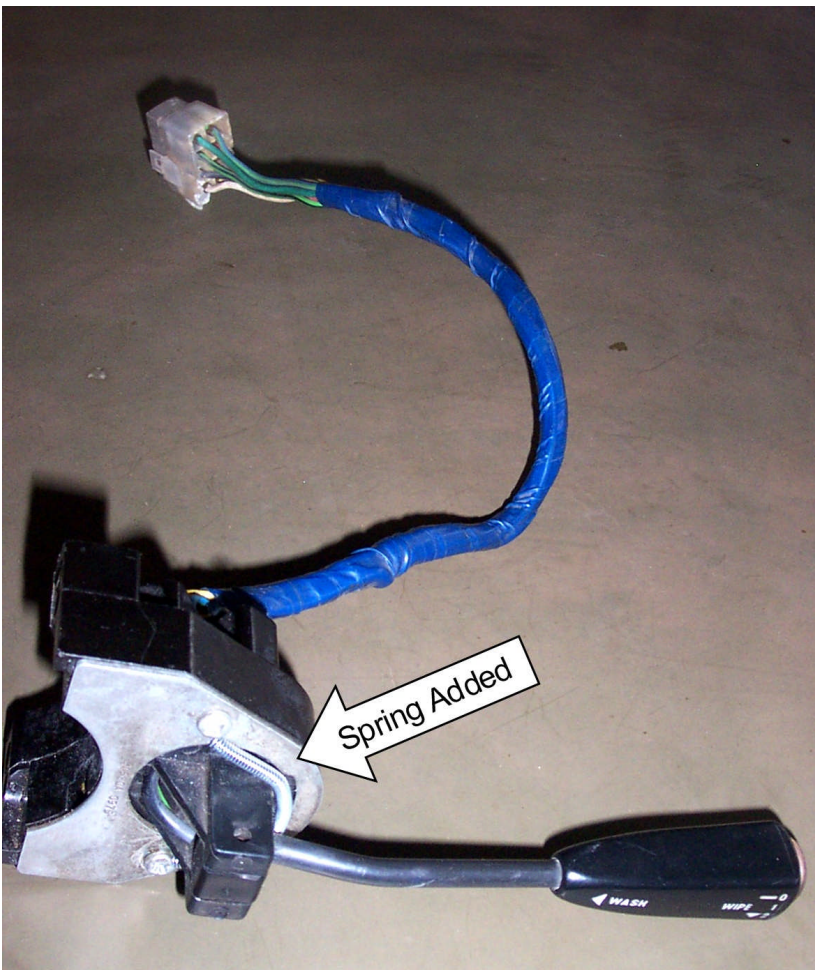
Wiring Diagrams & Pictures



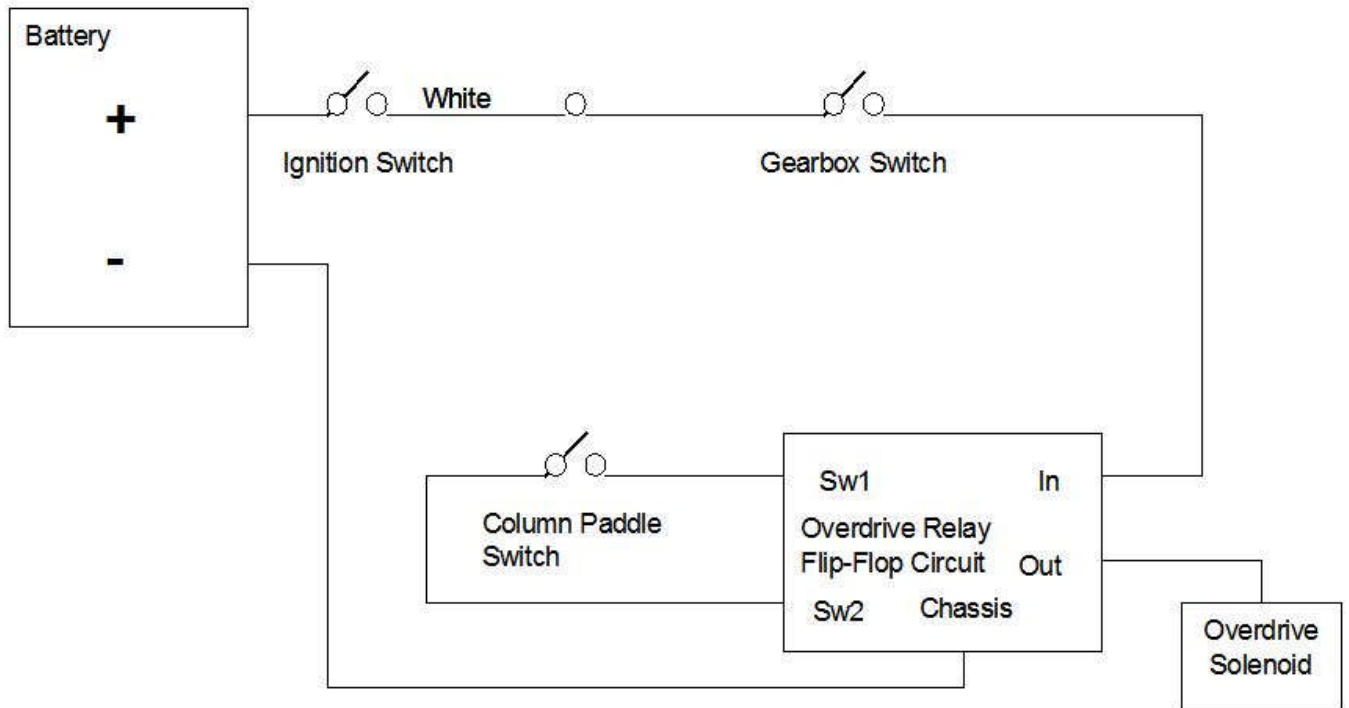
The end results laid out on the bench



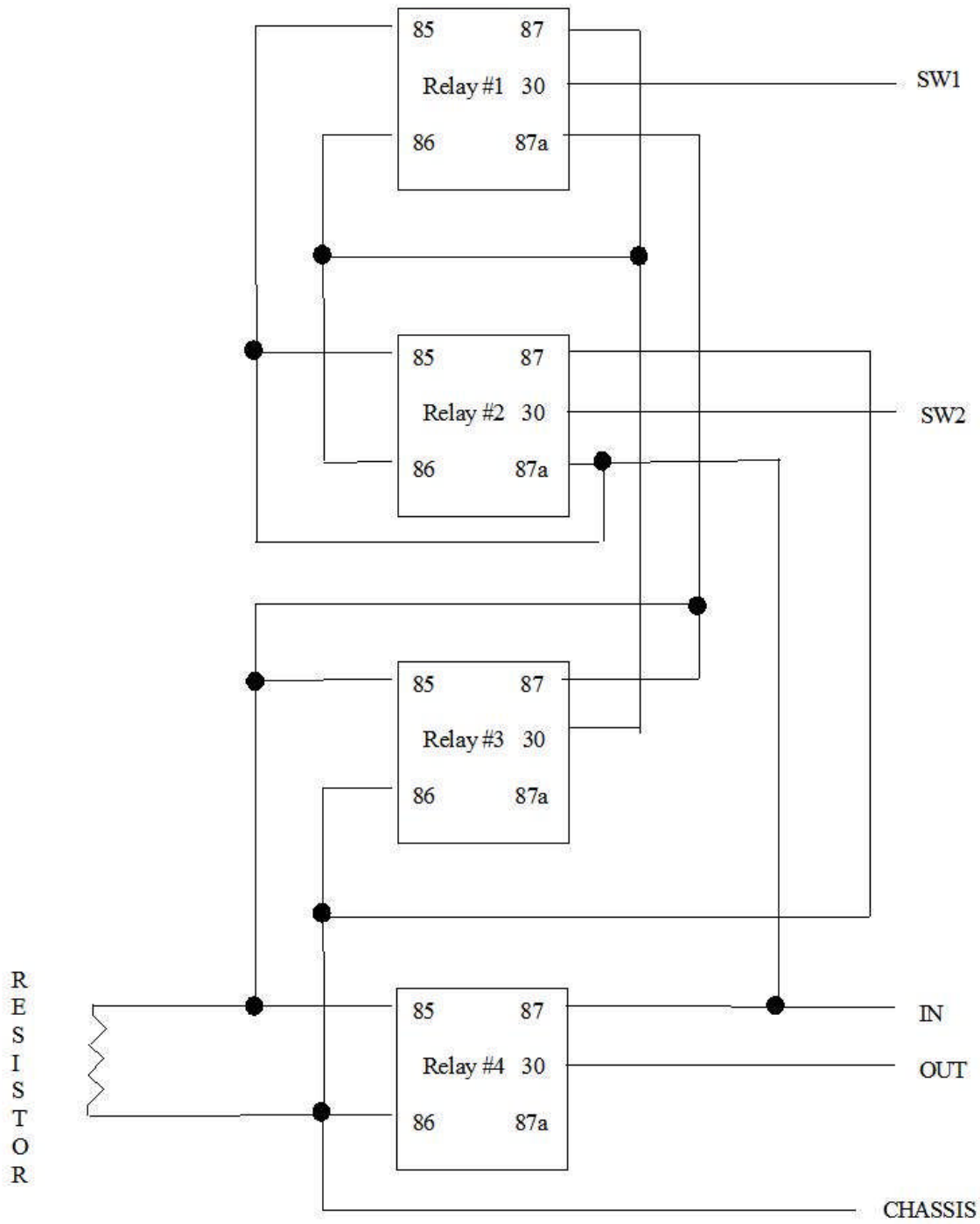
The relays connected and wired up.



The modified overdrive switch converted to a momentary switch.



The overall wiring schematic for the overdrive conversion to use a momentary switch



Here is the detailed wiring schematic for the flip-flow switch