

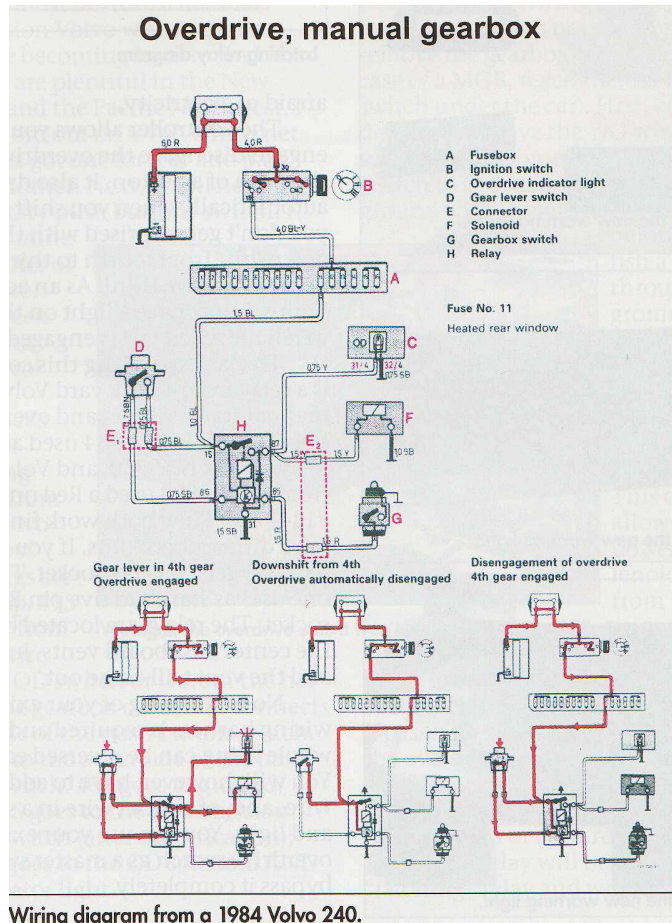
# Electronic Overdrive Controller

Article and photos submitted by Lee Fox, MG Club of St Louis. Published in the MGB Driver Jan/Feb 2012.

If you're lucky enough to have an MG or Triumph with a Laycock de Normanville overdrive transmission, whether the A, J, LH or D-type, you've enjoyed the lower RPMs at highway speeds and increased fuel economy. These overdrives usually operate only in third and fourth gear. Overdrive is wonderful. You flip a switch to engage or disengage overdrive, but if you're cruising down the highway in OD fourth and need to downshift for a hill or to overtake another car and forget to turn the switch off before shifting - boom - you go from OD fourth to OD third and have no power! This could get dicey passing someone in a tight spot on a two-lane road. Volvo had a better idea.

I made an electronic overdrive controller for my 1973 TR6 with J-type overdrive. This was a fun and easy project and should cost less than \$20.00 if you enjoy visiting your local pick-n-pull junk yard and are not afraid of electricity.

The controller allows you to engage/disengage the overdrive with the push of a button. It also drops out automatically when you shift gears so you don't get surprised with that quick downshift from fourth to third and, oops, overdrive third! As an added bonus, I now have a light on the dash to tell me when OD is engaged.



Wiring diagram from a 1984 Volvo 240.

The key to making this controller is a relay from a junkyard Volvo with manual transmission and overdrive. Volvos from 1978-1984 used a Blue relay, part # 1259750, and Volvos from 1985-1993 used a Red one, part # 1347768. They both work fine, but have different pin outs. If you find a red one, get the relay socket. The blue one uses as standard five pin Bosch socket. The relays are located behind the center dashboard vents. Just yank and the vent will come out.

No butchering of your existing wiring harness is required and the whole thing can be reversed easily. You will, however, have to add one wire,



Blue relay, part 1259750, and Volvos from 1985-1993 used a Red one, part 1347768.

and, of course, wire in a switch and light. You can use your existing overdrive switch as a master switch or bypass it completely.

Let's get started: First, find a relay. The relay must be from a manual transmission Volvo with overdrive, which are becoming hard to find near me. They are plentiful in the New England and the Pacific Northwest. I put the word out on a Volvo internet forum and got one for free and paid \$10 for another. Next, you'll need a "momentary push button" switch. I mounted mine in the center of the dash console between the fan and heat control knobs.

OK, let's wire it up. The wiring diagram from a 1984 Volvo 240 shows how things are hooked up. #15 gets +12V from the Y/G wire from the OD switch or G from the harness to the gearbox cover and connects to one side of the push button switch. #86 goes to the other side of the push button switch. #31 goes to ground/earth; #85 goes to the transmission lockout switch (after modification); and #87 goes to the OD solenoid AND the indicator light

You must make two simple changes to the wiring on the transmission that does not require you to remove the gearbox cover (or in the case of an MGB, reach the OD lockout switch under the car). First, while under the car, move the Y/G wire on the solenoid that comes from the lockout switch to the same terminal as the ground wire. A piggyback connector is helpful. Next, fish a new wire through the grommet on the gearbox cover and attach it to the terminal of the solenoid you just vacated. This change allows you to power the solenoid directly from the relay and grounds the switch when in 3rd and 4th gear. The lockout switch on top of the gearbox opens as it passes through neutral, so drops out the overdrive on shifts up or down.

If you can't find a Volvo overdrive relay, don't despair. You can use a handy Bosch or cube relay instead. The Bosch relay will be wired as a "latching" relay and will work as above, except that a second push of the momentary contact switch will NOT disengage the overdrive. To disengage the OD, you must either shift through neutral or flip the original OD switch on/off. Not a big deal, but not as elegant as the Volvo method.

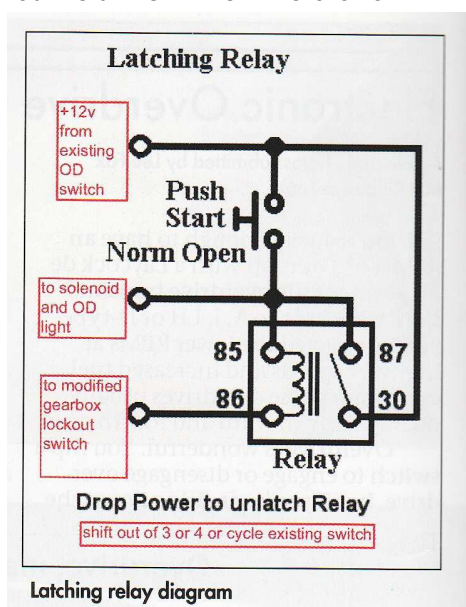
To wire a Bosch relay as an OD latching relay wire the relay as follows: #30 goes to +12v from the original OD switch AND one side of the push button; #85 AND #87 are connected together and go to the other side of the push button and



New pushbutton switch for the overdrive.



Wiring at the overdrive unit, it won't be this easy on a MGB.





to both the solenoid and the light. #86 goes to the modified gearbox lockout switch (ground in 3rd and 4th only) and #87a (if available) is unused.

Having a light to tell you when you are in overdrive is helpful. I originally thought of using a lighted momentary pushbutton switch, but could not find one, so I thought why not adapt an existing dash light. Two options came to mind for the TR6. Convert the "Fasten Belts" light or the "Hazard" light. Late model MGs used the same rectangular lights for such things as Seat Belt and EGR. I tried both and settled on the Hazard light, as it is right in front of me and I never liked the brightness of that indicator at night. You will need to use a new light socket or convert one of you existing ones.

Converting the light is pretty easy. The "names" are just printed plastic pieces that are changed to indicate the specific function or message. You can make your own. The light consists of several parts.

I printed an "overdrive" label using Avery 5660 clear address labels on a laser printer. The typeface I chose was 12 pt. Arial Narrow in white type in a black text box. Not perfect, but close enough. Because the label has a matte finish and to protect it I put a piece of clear packing tape over the top and affixed the whole thing to the colored filter. The laser black wasn't quite black enough, so I put electrical tape on the back side of the colored filter to further block the light.



1. Making the new warning light.



2. Making the new warning light.



3. Making the new warning light.



The finished warning light lit up on the dash in place of the hazard warning light.