



## The Use of Automatic Gearboxes

Automatic car gearboxes are less common than manual gearboxes in Great Britain and as a result drivers are often uncertain in which position the gear shift lever should be in any given set of circumstances.

This article is designed to assist the driver to decide the optimal position and explains the workings of the components to facilitate understanding. Because of the variety of systems in use you should abide by the guidance given in the vehicles owners' handbook.

Modern automatics now have 5 gears and electronics to alter the shift characteristics to suit the driver although the majority of gear selection positions are marked:

P	Park	Must never be engaged whilst the vehicle is in motion as it locks the transmission and prevents the car from moving.
R	Reverse	
N	Neutral	
D	Automatic use of 1st, 2nd, 3rd, 4th & 5th gears.	
4	Automatic use of 1st, 2nd, 3rd & 4th gears.	
3	Automatic use of 1st, 2nd & 3rd gears.	
2	Automatic use of 1st & 2nd gears.	
1	1st gear hold.	

For normal driving the lever may be placed in D and the transmission will automatically change up or down according to road speed and accelerator position.

If it is necessary to manually change down to a lower gear, this may be done by moving the gear lever to the required position, but only if the vehicle is travelling at a speed which is within the range of the gear chosen.

**This facility must not be used excessively.**

When maximum acceleration is required, the accelerator should be pushed to the full throttle position, overcoming the built-in resistance. This brings into operation the "kick down" that causes an immediate downshift into the correct gear for maximum acceleration, provided that the road speed is within the speed range of the lower gear. When accelerator pedal is released, the gearbox will automatically change up again. Some gearboxes have a "kick down" system that also works at part throttle. It is because of the different methods in which gear changes can occur that drivers are sometimes uncertain as to what action they should take to negotiate a hazard in the correct gear.

Leaving the gear lever in D when negotiating a hazard in a car fitted with an automatic gearbox in no way equates with a vehicle with a manual gearbox in top gear when negotiating a hazard.



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When stationary in traffic, even for many minutes, it is not necessary to move the gear lever into neutral because the torque converter absorbs the engine propulsion force but does not transmit it all to the gearbox as the engine revs are too low. No wear is taking place.

In fact, more wear will take place if the driver engages neutral and then engages a gear when he is able to move off.

When stationary, but in gear for any period, the hand brake should be applied and the foot kept clear of the accelerator.

Here are some recommendations as to the correct action to be taken in some common sets of circumstances:

- At traffic lights.  
Leave in D. If red, stop and apply hand brake.
- At Roundabouts.  
Use D unless the roundabout is very large or in exceptional circumstances.
- On bends.  
Normally leave the car in D, unless the car is likely to change gear on its own when the driver does not want it to only then should manual selection of a gear be made.
- Overtaking.  
Normally use "kick down" if a quick overtake is needed. If progressing along a line of vehicles where quick acceleration is needed, followed by deceleration to fit into a gap, the manual selection of a lower gear may be beneficial.
- General.  
In unusual circumstances, when the gearbox is continually changing up and down between two gears, the manual selection of the lower of these two gears may be beneficial.

It is not necessary to either "kick down" or change down manually to engage a lower gear for a hazard simply because one would change down if driving a car with a manual gearbox when negotiating the same hazard. The torque converter and gear train are designed to select the correct ratio.

On certain tiptronic type gearboxes, the manual engagement of a gear eliminates the "kick down" facility completely.