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CLUTCH CONTROL - MOVING-OFF & STOPPING

Throughout my career I've found that the large majority of students have a general fear of stalling the vehicle - the thought of holding up other road users or potentially finding themselves in the path of oncoming traffic can send shivers up the spine of even the most confident of person.

Stalling is 100% part and parcel of the learning to drive process and generally occurs when moving off or stopping.

Below are some methods which you can use to move off, and help reduce your chances of stalling:

Moving-Off

Beginner method

The general 'beginner' method we use is as follows. This method is very effective at preventing a stall whilst allowing the inexperienced driver gain a confidence and understanding.

Fully press the clutch pedal down (at this point ensure that the clutch remains fully pressed) then select first gear. Set the gas - squeeze the accelerator pedal gently until you hear the engine pitch increase slightly and the engine speed (RPM) increases to around 1500. At this point keep your right foot still (it's important to avoid the engine speed dropping).

We then need to find the 'biting point' (the point at which the two 'clutch plates' meet - the engine clutch plate connects with that connected to the gearbox which in turn connects the drive to the road wheels). To do this you should slowly lift, or 'raise' the clutch pedal in a smooth, controlled manner until you find the bite - you will know when you have the bite as you may feel the front of the vehicle begin to rise slightly (whilst the rear dips down) and you will also hear the engine pitch become lower along with the engine speed.

If you find the vehicle begins to make some creaking, groaning noises, this is because the vehicle is trying to move - the vehicle shouldn't actually move if the handbrake is fully applied. In order to overcome this you should gently squeeze the clutch pedal down (in many cases you should only need to move the clutch pedal around 4-5 millimetres - imagine the thickness of a £1 coin) until the vehicle settles and levels its self again.

At this point, provided that you've confirmed by way of your observations that it's safe to move, you should slowly remove the handbrake in a controlled manner - this will allow the clutch to take the weight of the vehicle progressively. When the handbrake is off the vehicle should either remain stationary (in which case you should release a further small amount of pressure from the clutch pedal until the vehicle begins to move), or begin creeping forward. Please be aware that if you release the handbrake quickly, the weight of the vehicle is effectively being passed to the clutch in one large, quick load - doing so will either move the

vehicle off too quickly in an uncontrolled manner, or in the other extreme will likely result in the vehicle stalling.

Either way, you should now keep both feet still for a count of two (this allows sufficient time for both clutch plates to get up to the same speed) then smoothly and progressively bring the clutch pedal up to its resting position whilst gently increasing the pressure on the gas pedal.

You will now have completed a 'beginner' move-off manoeuvre.

As effective as this method is, you should aim to move on to a better, more efficient version as confidence increases as this particular method can be quite taxing on the vehicle whilst being impractical for use in regular stop-start situations.

*Please note that this method will actually remain a small part of your driving as it is used when moving-off from an incline hill-start. The only real difference being that you may be required to increase the amount of gas used.

Improved method

The 'improved' method we use is as follows. Both this and the method above have a lot in common, however this method proves to be a lot more fluid and natural. It's also important to think of this method as a series of movements as opposed to just a single one.

Fully press the clutch pedal down (at this point ensure that the clutch remains fully pressed) then select first gear. Set the gas - squeeze the accelerator pedal gently until you hear the engine pitch increase slightly and the engine speed (RPM) increases to around 1500. At this point keep your right foot still (it's important to avoid the engine speed dropping).

At this point you should begin to slowly lift, or 'raise' the clutch pedal in a smooth, controlled manner. Just before the clutch actually reaches the biting point (and provided that you've confirmed by way of your observations that it's safe to move), you should slowly remove the handbrake in a controlled manner. The vehicle will now begin to move. You should be very smooth and gentle with the clutch pedal operation at this point by raising it in a slow, progressive manner. After two or three seconds (the car now has energy and forward momentum), raise the clutch smoothly and progressively but this time faster than before up to its resting position whilst gently increasing the pressure on the gas pedal.

You will now have completed an 'improved' method of moving-off. This particular method, in many cases, does not come naturally, but with structured practice and calmness will become the norm.

Quick, prompt method

This method is used when required to move-off more quickly or promptly. There are going to be regular instances, such as at busier junctions and roundabouts where time and space are limited due to the volume of traffic. It's important that you, over time, become confident in this as taking too long to move-off can be considered as hesitance. Try to keep calm as these situations are, due to the very nature of the response required pose higher risk of stalling - normally due to 'too much of one, not enough of the other' (too much clutch, not enough gas - and vice versa).

In order to move quicker and in full control, you are essentially using the 'improved' method above. The only real difference being that just before you intend to actually move off, you should increase the amount of gas in order to increase the engine speed. The higher the

engine speed you use (within reason - you should avoid 'over-revving' the engine), the more quickly you will be able to bring the clutch back up to its resting position.

In essence, the more quickly you bring the clutch up, the more quickly and promptly you are able to move-off, therefore, because of the increased engine speed you have used, you will not stall the vehicle.

There is a word of caution when using this method. Be aware that should you 'over compensate' with the amount of gas used, and in turn bring the clutch up too quickly you could actually lose traction (grip) with the road surface by spinning the wheels. This action, of course, is potentially dangerous as there is a huge lack of control.

Stopping the vehicle

Unsurprisingly, when you have moved off, it's going to be required for you to stop the vehicle at some point also!

When stopping the vehicle, timing is of great importance as the point at which the clutch is depressed can have an overall effect upon the both the stability and general control you have over the vehicle.

Essentially, you're aiming to depress the clutch before stopping the vehicle. The general rule of thumb is if the vehicle is moving slowly in first gear, then the clutch is depressed first followed by use of the footbrake. If the vehicle is travelling any faster and in any higher gear, then the foot brake must be used first, followed by the clutch.

As mentioned earlier, timing of when to use the clutch is important

Under normal driving, decide where you need to stop (SCALP), use the foot brake initially then follow this by depressing the clutch pedal around three to four metres (around one, to one-and-a-half car lengths) from your intended stopping point. This should be implemented in any gear (except, of course, first gear) and at any relative speed. Should you depress the clutch pedal any later in the stopping manoeuvre than mentioned previously, particularly when travelling in higher gears such as fourth or fifth, you could actually stall the vehicle due to the high gear and low (and reducing) engine speed.

Please note that when using the foot brake whilst depressing the clutch, at any speed and in any gear (including first gear), the vehicle will to some degree increase in speed as you are effectively removing the braking effect of the engine. You should, as the clutch is depressed apply a small amount of additional pressure on the foot brake to compensate for this.

Furthermore, depressing the clutch too early or leaving the clutch depressed for too long will also have an adverse effect upon the control of the vehicle. Please see my "What is Coasting?" document.

What to do in the event of a stall

The best thing to do in the event of a stall is to try to remain calm. Of course, where you stall will have a certain effect upon how calm you can be and how quickly you may need to get moving again. The initial and most important action is to make the vehicle safe and secure by applying the hand brake. If you should stall when in either first gear or reverse gear it's not necessary to return the gear lever to neutral position - simply leave the gear lever in position, ensure that you keep the clutch pedal fully depressed (very important as if the key is turned whilst in gear with the clutch at it fully up position, the vehicle will lunge forward if in first gear, or backwards if in reverse gear) then re-start the engine and move off again.

Should the vehicle stall in any other gear apart from first or reverse, apply the hand brake first to secure the vehicle then return the gear lever to the neutral position.

You should then simply prepare the vehicle to move-off again in the normal manner.

Best wishes and 'Safe Driving for Life'

Chris Chambers DSA ADI

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