



**SHIFTERS™.ca**

**Manual Shift Training**

**1-888-407-5453**

**In Toronto: 416 - 921 - 7845**

# Shifters Tip Sheet :

## 15 Must-know Manual Driving Procedures

When you decide to learn to drive a manual transmission it can be really tempting to go out into busy traffic before you're ready. Operations that you can perform almost mindlessly in an automatic vehicle can suddenly feel painfully slow, overly complex, and even dangerous around other road users.

By the time you consider yourself ready to venture out into busier city streets you should be able to independently handle a manual transmission on quiet streets and have a reasonable grasp of the following procedures.

### 1. Start The Engine:

- a) Make sure the parking brake (e-brake) is on.
- b) Depress clutch and brake pedals.
- c) Shift to neutral
- d) Start the engine
- e) Release the clutch slowly to verify that you are in neutral
- f) Turn on necessary accessories (lights, wipers, etc...)
- g) If the engine is cold let it run for a few seconds until the rpm begin to drop back down towards idle (about 700rpm for most 4-cylinder engines)

### 2. Get Set to Move:

- a) Depress clutch and brake pedals.
- b) Shift to either 1<sup>st</sup> or R gear
- c) Release the parking brake.

### 3. How To Drive at Dead-slow Speeds: Forward/Reverse (0 – 6 km/hr)

This varies according to the size/type of engine that you may be driving. For most 4-cylinder engines follow this procedure:

- a) Release the brake pedal
- b) Hold the gas to rev the engine about 300 rpm above idle (about 1000 rpm, or fast-idle)
- c) Feather the clutch to "kiss" the friction point briefly, and
- d) As the vehicle begins to move forward depress the clutch slightly in order to keep the speed in check.
- e) Depress the clutch slightly more to slow down further, or to stop.





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- f) If you're not slowing sufficiently, then and only then, brake.

**Note:** If you're not slowing sufficiently when you depress the clutch pedal – you've released it too far to begin with.

**4. How To Launch – in 1<sup>st</sup> Gear:**

- a) Release the brake pedal
- b) Rev the engine to about 1,500 rpm with the gas pedal
- c) Release the clutch to the friction point
- a) As the vehicle begins to move ahead – hold both feet in position (frozen) until the engine flywheel and clutch discs synchronize. (8 – 10 km/hr)
- d) Release the clutch completely and rest your foot aside, on the dead pedal
- e) You may now accelerate, without damage to the clutch.

**5. How To Slow Down While Driving in 1<sup>st</sup> or Reverse Gears:**

- a) Gently release the gas pedal (completely off if necessary). The engine will slow down to idle and continue on at idle. (about 6 km/hr)
- b) To resume speed, gently apply the gas.
- c) Do not depress the clutch unless forced to brake below engine idle speed.

**6. How To Stop While Driving in 1<sup>st</sup> or Reverse Gears:**

- a) Fully depress clutch pedal
- b) Gently apply the brake pedal.
- c) Shift to neutral

**7. How To Shift Up:**

The two main factors that determine the proper shifting speed for any given vehicle are:

- i. How much weight is being pulled by the engine
- ii. What type of gradient you are driving on

Assuming you've reached sufficient upshift speed

- a) Quickly depress clutch pedal fully, and almost immediately after...
- b) Release the gas pedal.
- c) Select the desired gear
- d) Rev the engine slightly
- e) Release the clutch to the friction point, pausing briefly and
- f) Release the clutch pedal completely
- g) Resume smooth acceleration

**8. How To Slow Down in Higher Gears:**

- a) Gently release the gas pedal
- b) Apply the brake if necessary (Gear speed ranges overlap one another)
- c) If you slow down below the midrange of the next lower gear – shift down, otherwise do not depress the clutch.
- d) Accelerate very gently if speeding back up again, until you are out of the overlap zone, and back inside the gear's normal speed range.



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### **9. How To Shift Down:**

For the same reason that you need to be going fast enough to upshift, you need to be going slow enough before you downshift. Never use a downshift as a means of slowing down, unless the brakes fail.

When forced to slow down below a gear's allowable speed overlap tolerance then you must downshift to avoid overloading the engine and transmission.

Slow down close to the lower gear's normal entry speed (low 20's for 2<sup>nd</sup> gear)

- a) Release the gas pedal and begin braking if necessary
- b) While still braking depress clutch pedal fully,
- c) Select the lower gear
- d) Release the brake to rev the engine slightly
- e) Release the clutch to the friction point, pausing briefly and
- f) Release the clutch pedal completely
- g) Resume smooth acceleration

**Note:** If you are downshifting in preparation for a turn complete the entire process before you initiate the turn. In other words, by the time you begin to turn the steering wheel, the clutch pedal is history.

### **10. How To Stop in Higher Gears:**

You may stop while driving along in any gear.

- a) Gently release the gas pedal
- b) Apply the brake
- c) As you approach engine idle speed (700 rpm) depress the clutch pedal
- d) As you come to a complete stop - shift to neutral
- e) Release the clutch - rest your foot on the dead pedal

### **11. How To Control Speed On A Hill:**

Perhaps the most valuable skill of all is the ability to balance your vehicle (hold the vehicle in a stationary position using clutch and gas pedals only). There are times when you need to transition very briefly from moving forward, stopping momentarily, and then moving forward again.

This is especially useful in controlling your speed when parking on a hill. This requires considerable practise and patience, especially at first.

- a) Hold the brake pedal
- b) Release the clutch to the friction point just enough to hold the car in place
- c) Release the brake pedal – the car should not move (if it does adjust the clutch placement until the car holds still.)
- d) Rev the engine slightly and hold (1000 rpm) - the vehicle should not move.
- e) Regulate speed with the clutch in paper-thin incremental adjustments. (up to move forward, slightly down to stop without rolling back.) NO BRAKE.

**Caution:** Practise this exercise for short time periods only. Prolonged practise can overheat the clutch and cause serious damage.



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### **12. How To Launch On A Gentle Slope:**

Even with the hill assist feature some vehicles still roll on gradual inclines. You may prevent this as follows:

- b) Hold the brake pedal
- c) Release the clutch to the friction point just enough to hold the car in place
- d) Release the brake pedal – the car should not move (if it does adjust the clutch placement until the car holds still.)
- e) When ready to move – rev the engine slightly and release the clutch ever so slightly and hold until the flywheel and clutch synchronize. (8 – 10 km/hr)

### **13. How To Launch On A Steep Grade:**

On steep grades the gravity pull is much stronger so the idling engine will lug if you try to hold the vehicle using the previous technique. In order to protect the drivetrain components you need to rev the engine before it can be used to hold and control the vehicle on a hill.

Many vehicles nowadays come equipped with the hill assist feature. The vehicle is programmed to hold you from rolling back on a hill, but for a limited time only. As a beginner you may find it difficult to begin moving forward smoothly within this time limit.

Until you develop a smooth and quicker flow practise as if the hill assist is not available.

- a) Set the parking brake, without locking it (thumb release-button depressed)
- b) Rev the engine to 1200 – 1500 rpm.
- c) Release the clutch to the holding point (hill balancing point)
- d) Release the parking brake – (the vehicle should remain still)
- e) When ready to move – rev the engine slightly and release the clutch ever so slightly and hold until the flywheel and clutch synchronize. (8 – 10 km)

### **14. How To Park Temporarily (engine on):**

Once you've stopped keep your feet on the clutch and brake pedals until the vehicle is secure.

- a) Set the parking brake
- b) Shift to neutral
- c) Slowly release the clutch to ensure neutral
- d) Release the brake pedal

### **15. How To Park For Extended Periods (engine off):**

Once you've stopped keep your feet on the clutch and brake pedals until the vehicle is secure.

- a) Set the parking brake
- b) Switch off all accessories
- c) Switch off the engine
- d) Shift to either 1<sup>st</sup> or Reverse gear (see owner's manual for specifications)
- e) Release the brake pedal (the vehicle may roll slightly)
- f) Release the clutch pedal (last)



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Some of these techniques may take several hours of practise before they become fluid enough to enable you to complete a turn and clear a busy intersection when the traffic lights change to amber or red. Take your time to learn all of these 15 essential skills. There are no short cuts. Going out into traffic before having a firm grasp of these fundamental skills will only cause grief to all parties involved.

Experienced drivers can certainly make all of this look easy, but they have paid their dues like everyone else. Take your time learning these in a calm, safe environment and you'll not only reduce stress, but also come to enjoy the interactive nature of driving a manual transmission, the way it was designed to be driven – in full control, and at low cost.