



Ross Bentley's High Performance Driving Tips - #7

HEEL AND TOE DOWNSHIFTING

In a previous High Performance Driving Tip I talked about the basics of shifting and mentioned the need to “heel and toe” downshift. So, let’s take a detailed look at this technique.

First, why heel and toe downshift? Have you ever downshifted by simply depressing the clutch, moving the shifter into the next lower gear, and releasing the clutch? I bet you have. What was the result? At best, a less than perfectly smooth downshift. At worst, the driving wheels locked up momentarily and maybe even made the car skid sideways.

The reason for heel and toeing is to complete your downshift *smoothly*, so that it doesn’t upset the balance of the car, *while* braking at the same time by operating both the brake and gas pedals simultaneously with your right foot. Sound complicated? It may be at first, but with a little practice you’ll be amazed at how good you will get at this critical technique.

The best way to learn and practice this technique is to try it before the car is even started. If you can't do it properly sitting still, then you won't get it right with the car moving.

Here is a step-by-step explanation of how to heel and toe:

1. Begin braking, squeezing the pedal with the ball of your right foot.
2. Get your left foot in position to depress the clutch - but not yet.
3. Continue braking, increasing pressure to maximum braking effort.
4. Depress the clutch pedal and gently move the shift lever into the next lower gear.
5. Continuing braking, and with the clutch still depressed, pivot your right foot at the ankle and let the right side of it squeeze the gas pedal, blipping the throttle (rewinding the engine).

6. Still maintaining your braking, pivot your right foot back, and ease the clutch out.
7. Continue braking.

Of course, with a little practice, it isn’t seven distinct steps, but rather one smooth, fluid motion. Eventually, it will become a natural, subconscious technique, like turning the steering wheel to go around a corner.

One of the most important aspects of heel and toeing is blipping the throttle. You must match the speed of the engine with the speed of the gear you are selecting. When doing this, don't watch the tachometer - your eyes should be looking ahead. The correct blipping of the throttle and matching of revs depends on practice and input from the ears and the forces on the body. If you don't blip enough, the driving wheels will lock up when the clutch is re-engaged. A major no-no! If you blip too much, the car will attempt to accelerate - you are supposed to be slowing down. The best way is to rev the engine up slightly higher than required, select the required gear as the revs drop, and quickly engage the clutch.

Remember, it takes practice - constant practice. It may seem like there are a lot of things to do all at once, but once you get the hang of it, you will be able to complete a heel and toe downshift in about a second. To do this properly your car must be set up correctly. When the brake pedal is depressed fully, it should still be slightly higher and directly beside the gas pedal. Most cars are set up pretty well. Still, you may want to bend or add an extension to gas pedal to suit you – do not attempt to modify the brake pedal.

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