



Ross Bentley's High Performance Driving Tips - #16

DIFFERENT CARS, DIFFERENT TECHNIQUES?

One of the most common questions I'm asked is what is the difference between driving a front-wheel-drive car and a rear-wheel-drive car, or front-engine versus rear or mid-engine. My usual answer is "the basic techniques used to control any car are exactly the same - however, the timing and amount of steering, throttle and brake application used to control it does vary slightly". Let's look at this in a little more detail.

As I've mentioned before, the key to controlling any car in a skid, slide or during cornering is to control the weight transfer or balance of the car. As the rear-end of the car begins to slide (oversteer - the rear tires having less traction than the fronts), the driver must transfer some weight to the rear to increase rear tire traction by squeezing on some acceleration. How much acceleration, and when, is the part of the technique that will vary with different types of cars.

A mid- or rear-engine car's static weight distribution is slightly more biased to the rear than in front-engine cars - usually 55% or more of the weight over the rear tires. So, as the rear of the car begins to slide sideways, all that weight in the rear acts like a pendulum trying to swing the car right around. You have to catch that slide before it gets too out of hand, which means the timing of your corrections may be a little different than with other cars.

In my experience, with a mid-engine car you have to get back on the throttle as soon as possible once you've entered a corner, to ensure the rear-end does not slide too much (a little is just right - a lot is both slow and dangerous!). In other words, get back on the gas a little sooner than you would in most front-engine cars - a lot sooner than you would in a front-wheel-drive. But, you must squeeze the throttle on much more gently and smoothly than in any other type of car. If you don't, you will cause "power oversteer" - where you have broken the rear tires loose by giving them too much acceleration forces - which will most likely result in a spin. The key is to balance the car's weight with the throttle.

As far as steering control goes, there is not much difference between the rear- or mid-engine car and others, except that you have to be prepared for the inevitable oversteer slide -

and correct for it. Everyone has heard the "steer in the direction of the skid" advice for correcting an oversteer skid or slide. Many people are confused by this statement. Well, how about "look, and steer, where you want the car to go - not where it is already heading"! It's really that simple. If your car starts to oversteer slide until it is pointing towards the inside of the turn, look and steer towards the outside of the turn - or where you want to go. Think about it, and try it the next time your car begins to oversteer.

So, in one phrase, the "trick" to controlling a rear- or mid-engine car is - "gently squeeze on the throttle earlier in the corner to balance the car, and look and steer where you want to go". If you have been driving front-engine cars for many years, it may take a while to get comfortable squeezing on the throttle earlier in the corner - and being sensitive enough with the pedal.

Now, what about cars with a weight bias to the front, such as front-engine rear-drive cars, or even more so, front-wheel-drive cars? Well, just like the weight of a rear or mid-engine can result in oversteer from the pendulum effect, all the weight up front in front-engine car often leads to understeer. But all you need to do is realise that and balance the car in a way to neutralise the understeer.

There are two key points regarding front-wheel-drive cars that should be made. First, the obvious: the front tires on a front-wheel-drive car do all the work - they steer, they accelerate, and do most of the braking. Therefore, it is very easy to expect too much from them. Which brings us to the second point. You often hear people give the advice "accelerate hard in a turn with a front-wheel-drive car to 'pull' you out of a skid or slide". Think about it. If the front tires are at or near their limit of traction, and you accelerate hard, all you are going to do is increase the understeer. Again, the tires have a limit. Respect that limit.

The bottom line is that the techniques used to control any car, whether it be front-engine, rear-engine, mid-engine, rear-wheel-drive, front-wheel-drive or all-wheel-drive, are the same. It all comes down to controlling the balance of the car, which may require slightly different timing of your use of the controls.

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