

# INTERNAL COMBUSTION

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THE DRIVING EXPERIENCE OF AN ELECTRIC VEHICLE IS NOT HALF AS MUCH FUN, AS COMPARED TO A CONVENTIONAL CAR

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**T**he interest in EVs or electric vehicles is on the rise and now I am often asked, “How different is the EV driving experience?” Well, actually though there are several similarities, there are also some huge differences. For starters, the sound. Most people, who are accustomed to driving IC (internal combustion) engine cars, will find EVs eerily silent. While the noiseless manner in which they float along is really good for noise pollution and passenger compartment refinement, it does take some getting used to. It can be a hazard

for pedestrians and cyclists too, and some countries require EVs to produce “warning sounds” to alert others of their presence. In fact they have laws stating that “quiet” vehicles must have cautionary sounds like beeps, chimes, IC engine-type exhaust notes or the sound of tyres going over gravel and so on. Therefore several EVs now come with acoustic vehicle alerting systems (AVAS), which are automatically activated below certain speeds.

As far as I know, we still have no such rule in India. But in my view, with the growing numbers of EVs on our streets, this is something we should address. Another thing we seriously need to look at is making a “Driver Alert Sleep Warning Device” mandatory in EVs. Already there are a number of accidents due to drivers dozing off, and with EVs being almost soundless, the chances of this happening are that much higher.

One other big difference is the absence of a gear shifter in EVs, simply because they have just one single gear! An internal combustion engine develops its power and torque at different revs and therefore it needs a gearbox with various gear ratios to effectively transfer the power to the driven wheels. But as an electric motor does not have to burn fuel or go through a combustion process to generate power, it delivers its maximum torque at zero rpm! Therefore EV engineers only need to design a one ratio, single-speed transmission that regulates the electric motor and delivers the best balance between acceleration and top speed.

After starting the motor, all the driver needs to do is push a button or turn a dial to either move forward or reverse. Then you just press the pedal and while this is easy, one has to be careful as there is an immediate surge of power due to the instantaneous torque delivery. Yes, EVs are quicker off the block than even some sports cars! So if you are driving an EV for the first time, it’s best to gradually push on the accelerator and learn to handle the instant acceleration and buildup of speed.

Since driving an EV is comparatively simpler and requires a driver to do fewer things, I have noticed there is also a tendency to over speed and drive faster than one normally would. This combination of “silent motion” along with “speedy movement” can be lethal, so I strongly suggest you exercise extreme

caution while driving an EV for the first time or at least until you get completely familiarised and comfortable with it.

There is another totally distinctive aspect and this is “one-pedal driving”, which is possible due to regenerative braking or the regenerative energy systems fitted on EVs. This basically harnesses an electric vehicle’s kinetic energy, and converts it back to electrical energy while decelerating, going downhill, or braking. Though charging the batteries is the main goal, it also facilitates “one-pedal driving”. This is because whenever you release the accelerator in an EV, it automatically initiates regenerative braking, which in turn slows the car down quite rapidly. Compared with a conventional IC engine powered car, the speed of deceleration when you take your foot off the pedal in an EV is such that you feel like someone has automatically started applying the brakes. As the deceleration continues until you step on the accelerator again, you actually don’t need to physically apply the brakes to bring most EVs to a halt.

This “one-pedal driving” of course requires good anticipation and understanding of the traffic on the part of the driver, and as the brakes work just like they do in a normal car, you can apply them in an emergency or whenever you choose. But the real fact is that you can drive almost all electric cars by smartly modulating and using just the accelerator pedal. The only exception is in the rare case, when a particular manufacturer chooses to go easy on the energy regeneration, and the system allows the EV to glide forward just like a regular car.

There are few more significant differences in driving an EV. Since electric motors can rotate up to 20,000rpm, there is no fear of redlining or damaging them. You can also not stall an EV as it has only one gear, which means no gear shifts. On the whole, driving an EV is certainly simpler and requires a driver to do lesser things. But, it does need some change in driving habits. As far as I am concerned, while I appreciate the ease of driving an EV, I remain a diehard conventional car fan. And in my view the experience of driving an EV is nowhere as thrilling, pleasurable or involving, as that of a car with a fuel-burning engine mated to a gearbox. Long live the internal combustion engine. 