INTERNAL COMBUSTION

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A MECHANIC LOOKING UNDER THE BONNET AND FIXING A CAR WITH SPANNERS AND WRENCHES WILL BE A THING OF THE PAST. THE SCREWDRIVER IS BEING REPLACED BY SOFTWARE

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Recently, the 2021 United Nations Climate Change Conference, also known as COP26, was held in Glasgow, United Kingdom. Many world leaders, including our Prime Minister Narendra Modi attended and committed to reducing the use of fossil fuels, one of the main contributors to global warming. After COP26, it's even more apparent that the future of mobility is EVs or electric vehicles and we are presently witnessing the biggest revolution in the automobile world, since the introduction of the assembly line for mass production of cars.

The death warrant of the IC (internal combustion) engine has been issued, and the countdown for its extinction has begun. But it won't go alone and several other items linked with it shall also vanish. EVs don't have things like pistons, valves, gaskets, spark plugs, fuel pumps, air and fuel filters, injectors, water pumps, timing belts and pulleys, cooling systems, exhaust systems, etc. And as there are no major moving parts, there is no friction, so no lubricating oil and this means engine oil changes, will become a thing of the past. And as the drive in electric vehicles is direct from the motor to the wheels, there is no clutch or gearbox either.

In fact I am told that EVs have less than 10 percent of components compared to a regular car! Fewer parts mean reduced wear and tear and repairs and maintenance. And even for those parts that require changing, the frequency is less. Take the brake discs and pads. They last a lot longer due to the regenerative braking that captures kinetic energy and sends it to the battery. This slows the electric vehicle whenever you decelerate and thus the brakes are not used as often as in a regular car.

Replacing parts on an EV is easier too, as there is no major dismantling and therefore it needs less time in the workshop for repairs. Some experts estimate that the maintenance cost of an EV is about half of that of a normal vehicle. While all this will surely benefit consumers, what about car garages? They are bound to suffer and lose business. Even automobile dealers will be affected as one of their main revenue sources is after sales service. And of course the mechanics will need extensive training and a completely new set of skills. Spanners and screwdrivers will not suffice with EVs. You want advanced diagnostic tools that allow you to hook up the EV to a laptop that will pick up any possible fault codes that might need attention. One will get online reports on required repairs and then you will use the right software and things like code readers and rectifiers to adjust the settings on an EV.

For well over a century, we have been used to mechanics looking under the open bonnet of a car and using screwdrivers, spanners and wrenches to repair it. This will now become a thing of the past, because software is replacing the screwdriver! The mechanic's toolbox as we know it will itself turn into a relic of the past. The mechanic of tomorrow will be more of a technician who understands computers, electronics, battery cells and charging technology. Sadly, many of the skilled mechanics, especially your friendly neighbourhood ones, will lose customers and may eventually be forced to shut down.

Apart from the need to train and reskill our mechanics, new equipment and processes to service EVs is also required. At the heart of an EV are its batteries. And to drive a car they need to be able to store a lot of electrical energy. And if these high voltages and amperage is not handled in a proper manner, the mechanic working on the EV can lose his life in case he or she gets an electric shock. I am told insulation plays a big part in both the making and servicing of EVs. Rubber mats, gloves, boots, etc, are all important with the most vital thing of course being the training on how to approach and attend to EVs. While EV sales are gaining momentum in India, unfortunately I do not see this reskilling or training taking place on any serious scale. What I think will happen is that the present mechanics will get restricted to repairing conventional cars and an entire new generation of technicians will emerge to service electric cars.

Another thing that is bound to happen is the change in the manufacturing processes and in the way we currently make cars. As mentioned, EVs have fewer parts with the main one being its batteries. These are made and supplied by battery specialists. Similiarly, the electric motors that transfer the power and turn the wheels, are also made by electric motor experts. And this is also true for things like the electric wiring harness, sensors, and computer chips and so on. So to make an electric car you do not need a massive factory with thousands of workers and lots of machinery and equipment. What is essential is that you source the best components and assemble the EV in the finest manner possible. Specialist body and chassis suppliers are entering the arena too, and this will totally transform the way in which cars are produced. Henceforth, manufacturers will just have to give suppliers their specification and design requirements, and after sourcing the parts, they can build, brand and sell an electric vehicle. Just as is done now with most personal computers.