Why Electric, Why Ridek?

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The fuel-burning-electric (or hybrid) car has evolved to reduce the fuel that cars burn and the pollution they cause, but it will not reduce global pollution because there will just be more cars. The plug-in hybrid car stores energy from the electricity grid for local driving, but burns fuel for longer trips. As batteries improve, its non-fuel-burning range will increase. It will gradually substitute electricity for fuel. Electricity can be produced cheaply, without pollution. Predictably, plug-in hybrids will use less and less fuel, and the trend will be toward the simple battery-electric vehicle.

The fuel-cell car, replaces most of the battery in a battery-electric car with a tank of hydrogen and a fuel cell. Unfortunately, the process of converting electricity into hydrogen, to be transferred to a car that converts it back to electricity is unavoidably inefficient, although it does not pollute. The fuel-cell car has been thoroughly demolished as a practical proposition by Joseph J. Romm.[1, 2]

The battery-electric car, an idea that has remained dormant because batteries do not store enough energy, cannot be quickly recharged, wear out too soon, and cost too much. They have improved, but drastic improvement is needed for the battery-electric to replace the fuel-burning car. Ridek offers such an improvement—not in batteries—but in how they are used. No new technology is required, merely an application of logic. It gives an improvement that compensates for the limited range of the battery-electric vehicle, the prolonged recharging time, the high cost and the relatively short life of its battery.

The first step in the development of Ridek was to ask: If the battery cannot recharge quickly enough why not replace it with another that is already charged, like the battery in a flashlight? This has been tried several times but it has not found favor. Batteries are cumbersome and it is difficult to design a car so that the battery can be changed quickly. Furthermore, although battery exchange deals with the problem of limited range, it does not reduce operating cost.

The next step was to ask: Because the battery is already on wheels—the running gear of the car—why not have a modular car such that the running gear is easily separable from the passenger compartment? Technically, this is easy and the result is a new class of vehicle, the Ridek. Building a car from chassis and body modules goes back to the early days of mass-production but the possibility of easily separating and rejoining them was not proposed until recently.[3] Technical details of Ridek are given in patents and other articles.[4] They involve applications of existing technology and offer no serious problems or difficulty

The Ridek consists of two modules: an upper module, or body, called the Ridon because it *rides on* the lower module, the Modek (short for motorized deck). The Modek-Ridon interface is standardized. Above the interface, the Ridon is free to comply with the particular needs of its owner. A rental contract gives the Ridon owner a fully charged and serviced Modek whenever needed. A battery-powered Modek would usually be charged at home, overnight, but for a quick charge it could be exchanged at a Modek Exchange Station for one that is fully charged. This exchange need take no longer than to refill a conventional car at a gasoline station. Unlike the hydrogen car, which requires an expensive infrastructure, the Ridek's infrastructure can be easily expanded from the existing electricity grid and the cost of an exchange station would be much less than that of a gasoline station. For Modeks recharging at home, overnight, visits to an exchange station would be much less frequent than for a fuel-burning car to a filling station.

Before Modek exchange stations are widely established, long distance driving will require the more compact form of energy storage provided

by gasoline or diesel fuels, but limiting such fuels to this application will enormously reduce their consumption. The Modek is readily adaptable to replacing some of its battery with a part-time fuel-burning generator, making it a plug-in hybrid. Modek exchange stations could make such modified Modeks available, thereby solving the immediate range problem.

The greatest single expense of operating a car is depreciation. The running gear in a Modek may last 30 years, but nobody keeps a car that long. The Ridek driver is unaware of the Modek's age, so it does not go out of style and its predicted annual depreciation is very little. Furthermore, unlike a conventional car, the Modek can be updated easily and kept in modern condition, much as a passenger jet aircraft can remain in service for 25 years, or more, to be retired only because its replacement is more fuel-efficient. The locally made Ridon can be refurbished and modified, also.

The expense of operating a car continues even when it is idle. A Modek need not be idle for so long because it can return to the pool of Modeks for others to use. For example, when a Ridek is left in the long-term parking lot at an airport, its Modek may carry taxis, rental cars, or light commercial vehicles while the Ridon awaits the return of its owner. The mass of idle machinery in a parking lot is thus reduced to non-mechanical bodies, the Ridons. Similar arrangements would apply to seasonally used vehicles. Their Ridons could be stored indefinitely without deterioration, license or insurance fees.

Instead of buying a whole car, the prospective owner buys a less expensive Ridon. The initial expense is therefore reduced. It is predictable that local industries would build Ridons much as they built horse-drawn carriages in days gone by. This would benefit local labor and give the buyer the chance to personalize the interior environment as well as functionality; whether delivery van, personal car and beyond.

The enormous number of cars manufactured each year eventually find their way to the scrap yard. This creates an increasingly serious disposal problem with environmental consequences. Much of the machinery in scrapped cars is still serviceable but limited use can be made of it. The Modek has a much longer service life because it is readily updated and its inconspicuousness protects it from going out of style. This mitigates the disposal problem.

The Ridek concept separates passengers from machinery by placing them in separate modules, one upon the other. No longer are passengers packaged close to the ground, essentially among the machinery. That arrangement has been exploited to absurd limits to make cars appear more sporty—not to make them go faster because most cars are capable of traveling much faster than the law allows. Should a car crash into the side of a Ridek at an intersection, the passengers in the Ridon will be ***above the point of contact***. In a car, only side airbags and reinforced doors protect the passengers in a side impact. These are less reassuring than the higher seating position a sports utility vehicle provides. No doubt this explains some of its popularity but the higher center of gravity of the sports utility vehicle increases the risk of rolling over. The Ridek's passengers ride just as high but its center of gravity is low because of its design. It has the same ground clearance as a car (about 15 cm); its battery and other components are placed low down and the seats of the Ridon where they would be in a minivan or sports utility vehicle.

REFERENCES

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4. ridek.com