

Hydristor.com website above – showing that they are comparable in size to current drum brake housings.) These options could apply to new cars, making new combinations of multiple-wheel drive more affordable and attractive to many who have wanted four-wheel drive for work or for sport, but have found it too costly. But in addition, it would very likely establish an entirely new consumer market: it would allow owners of current cars, SUV's or trucks with two-wheel drive to “up-grade” to four-wheel drive at an affordable cost, in the process of converting their older cars to the energy saving, carbon reducing Hydristor; a modification that would be prohibitively expensive or impossible with current conventional four-wheel technology. Such a configuration might, in the case of the individual wheel drive system, of course, require replacement of the differential with hydraulic systems controlling all four wheels with more precision than possible with current differentials.

New car designs incorporating the Hydristor, will offer the owners of Hydristor equipped cars or trucks a whole new range of options that do not currently exist, such as simpler, better power steering systems which could be driven from another set of hydraulic ports on the same Hydristor that runs the car, with no need for a separate drive powered from the fan belt. And many other possibilities, current unimagined will no doubt materialize.

Perhaps one of the biggest and most easily implemented impacts of the Hydristor on **the whole automotive industry** will arise from the fact that the dramatic increase in fuel economy produced by the Hydristor and its energy re-capture capability will be particularly striking in the case of the very popular larger cars, SUV's and trucks. Since larger vehicles necessarily have **larger kinetic energies at any given speed because of their larger masses**, the continual input of fuel in stop-and-go traffic driving to accelerate them repeatedly to large kinetic energies, followed over and over by the immediate dissipation of the newly acquired energy into nothing more than useless heat in the brakes at the next stop currently produces an enormous waste of fuel that is progressively larger for vehicles with greater mass. *On top of that effect, a large vehicle size requires larger, less fuel-efficient engines to produce acceleration without an undesirable feeling of sluggishness. Because of these two factors, both arising from the vehicle's larger mass, the mileage performance becomes worse and worse for larger vehicles powered with current engines and drive trains.*

However, there is a very bright spot! As outlined above, the energy storage capability of the Hydristor will permit the use of smaller, more efficient engines (without reducing performance), together with the capture, storage and re-use of the kinetic energy in the braking process. Thus **the Hydristor will bring the mileage and carbon dioxide properties of ALL these new vehicles in the production fleet to values much lower than the current models.**

That is good news, but there is even better news. As ALL vehicle sizes slide up the scale to better efficiency/emission properties for each of them, the improvements for the larger mass vehicles will be proportionately larger. Compact cars will achieve approximately *double* the current highway mileage, but perhaps surprisingly, as a result of the kinetic energy capture and recovery feature, nearly the same mileage in stop-and-go traffic, as on the highway. The large “American” style sedan will improve by a larger fraction than the compact, with the highway mileage more than doubled, and again with the stop-and-go mileage in nearly the same range as its highway mileage. And the mileage of the very large SUV/truck class will, in turn, have a greater proportional improvement, with its highway mileage approximately *trebled*, and again with the stop-and-go mileage in nearly the same range as its highway mileage. And, as indicated above, CO₂ emissions will have a reduction to between 1/3 to 1/4 of the emissions produced by current vehicles. Thus, **ALL vehicles will achieve**