Car of the Future, Sequestered for Twenty-one Years

The largest portion of environment complaints about modern society concerns personal transportation. A large portion of modern society income is wasted on a grossly inefficient design following a century old stamped steel model of stupidity. Quantum leaps in efficiency and safety have been systematically opposed to the profit of some and the determent of humanity.

It has been technically possible to provide a 200 mpg, four seat automobile with a 90% reduction in highway deaths for decades. I know, because I presented just such an automobile design in January of 1990. Twenty-one years later, this is still a quantum leap ahead of all current auto designs.

I began my personal efforts at civic participation in Sept of 1989 with presentations to the Houston City Council on revolutionary visions for mass transit and other public works projects. These presentations were filmed by the local NBC television affiliate, KPRC and aired on Dec 13, 1989. A few days later I got an invitation to be guest speaker at the premier senior high prep school in Houston, St John's Academy.

A middle aged engineer will not inform and entertain sophisticated high school students for an hour with 'Civil Engineering' projects, so I split my presentation into three segments. I began with 20 minutes on the most inspirational speaker of my lifetime, J Buckminster Fuller. This dealt with man's incredible ability to extend his natural senses and when confronted with the natural limits of those extensions, to invent a way around these.

One example of this was the optical microscope, invented in the seventeenth century by Anton van Leeuwenhoek and reaching it physical limit by 1920. You cannot 'see' anything smaller the wavelength of visible light, but by steaming electrons you see electronically many magnitudes smaller. I next covered my civic projects, and since the theme of presentation was "Future Days", I included my thoughts on the car of the future.

There is not now, or in the foreseeable future a successful battery operated automobile. There is not currently an efficient hybrid automobile. To be truly efficient you must design around fundamental principles of motion and incorporate the most efficient technology available. The most glaring defects in today's auto industry are cost, safety and fuel consumption. Amazingly all are related and easily solved with independent thinking.

Safety First

Mercedes-Benz proved that deformable crumple zones were far better for auto safety than massive rigid structures. Stamped steel has a number of disadvantages in auto design. It is heavy, it is non-resilient, it is prone to corrosion and it is expensive to produce. An automobile body manufactured with a combination of foam, plastics and carbon-fiber has none of these disadvantages. Reducing mass increases fuel mileage and REDUCES the INERTIA forces during impacts.

High speed photos of a plastic ping-pong ball in action show deformation and rebound. Imagine if the ping-pong ball was to be made of steel. Pound for pound a steel motorcycle helmet offers no protection compared to fiberglass, plastic or carbon fiber helmet. The safest auto should therefore be made of the lightest and most resilient materials available, a foam composite construction.

This foam composite construction is a good thermal insulator, reducing winter heating requirements and summer air conditioning. It is a little known fact that the average auto air conditioner has the same cooling capacity as the average 2,000 sq ft home. Foam composites will reduce this waste by 50%. These autos would be naturally buoyant and could float for months, eliminating all auto related drowning.

The economies of scale for reduced body weight mean smaller brakes, smaller suspension components, which are then coupled with the reduced fuel storage capacities. Reducing a 25 gallon gas tank to a 2.5 gallon gas tank removes three cubic feet of wasted space and 135 pounds of useless weight. Reducing weight does have one disadvantage, loss of control from buffeting winds.

To counter these wind forces, my design has skirted front wheels detached from the nose of the auto by inverted air foil wings. These wheel spats act as forward rudders to ‘steer’ air currents over the body and increase the turning forces. The engine design discussed later requires a stored pneumatic system allowing easy adjustment of ride height with speed and additional safety features.

Notice that there is no ‘swing open’ door. This typical large opening is the Achilles heel of crash impacts. Instead the future auto will feature a wide side bolster with an electric roll down window and a lift up (and removable) roof panel for access. By lowering the pneumatic suspension to grade, the step-over heights would be nominal. Placing rubber skid pads under the vehicle would provide 50% reduction in emergency braking by dropping these floor-pan skids to the road surface.

Aerodynamics is the next area of auto design after maximizing weight reductions. Front body openings are a high drag coefficient and unnecessary feature. Since 75% of the braking function is on the front wheels, this is the natural place for the electric drive motor and the regenerative braking system. The front body openings need only accommodate this minor heat load.

The Magic Multi-stroke Engine

By far, the most radical feature of the future auto is the obscure two-stroke air injected engine developed under an Australian patent in the 1980's. It is doubtful that the inventor realized just what he'd created and his patent information could not be located on my web searches. I expanded on the basic concept for this automotive application, but give due credit to the originator of the 'air injector' engine.

The basic two-stroke motor uses the downward force of the piston power stroke to pressurize the crankcase fuel-air mixture with reed or rotary valve controls. As the piston reaches the bottom of the power stroke, ports in the base of the cylinder open on one side for exhaust and the opposite side for the pressurized intake. This is a simple, lightweight engine design which is also inefficient and dirty.

What this clever, but currently unknown Aussie did was realize that large commercial diesel engine fuel injectors could supply the intake air requirements of a small two stroke engine and eliminate the intake port and pressurized crankcase. Using the 'air injector' at the bottom of the power stroke purged the cylinder and another small injector would inject the fuel at the top of the compression stroke.

This improved efficiency and eliminated the oil-gas fuel requirement. The now sealed crankcase could have a conventional oiling system for piston rings, rod and crankshaft bearings. What went unnoticed was that this was now a MULTI-STROKE ENGINE. By injecting air, fuel and firing on every other stroke this was a four stroke engine cycle. By injecting/firing on every third stroke this became a six stroke engine.

It was now possible to infinitely vary the engine capacity to the load demand. Using a two cylinder "L' shaped engine with inherent perfect primary balance you have simple cylinder deactivation. Using both cylinders in two-stroke mode you have maximum power which rivals a four cylinder four-stroke. Dropping to one 'power stroke' every third engine revolution gives a six fold decrease in power, swept volume and fuel consumption. A small compressor supplies the air injector and suspensions system.

A 500 cc engine of this design could easily produce 100 hp at full power, yet drop to an effective 83 cc and 16 hp motor for recharging the battery or running air conditioning and heating when stalled in traffic. The entire unit would be 60 pounds and the size of two shoe boxes. When coupled with the limited use 25 hp front mounted electric drive motor you now had a 1200 pound car with 125 hp, four wheel drive that could outrun a V-8 Mustang and cost half as much to buy and one quarter the amount to insure. I received a standing ovation from the auditorium of excited teenagers ready to sign up for the car of the future.

Saving a Nation with Good Engineering

My television debut provided a lot of notoriety, speaking venues and private meetings with elected officials. On Texas Independence Day, Mar 2, 1990 I had a scheduled 15 minute meeting with my congressman, Rep Bill Archer, District 7, Republican. The then Chairman of the Way and Means Committee and I talked for an hour and a half. He was most intrigued about my car design. We had an exchange something like this:

Olson: "If America begins building this New World Auto now, in four years we will be a net energy exporter and will cut auto fatalities by 90%. The down side is that there is no need for 100 ton steel presses, the cars would cost a fraction to buy, operate and insure so there will be massive restructuring of the entire automotive sector."

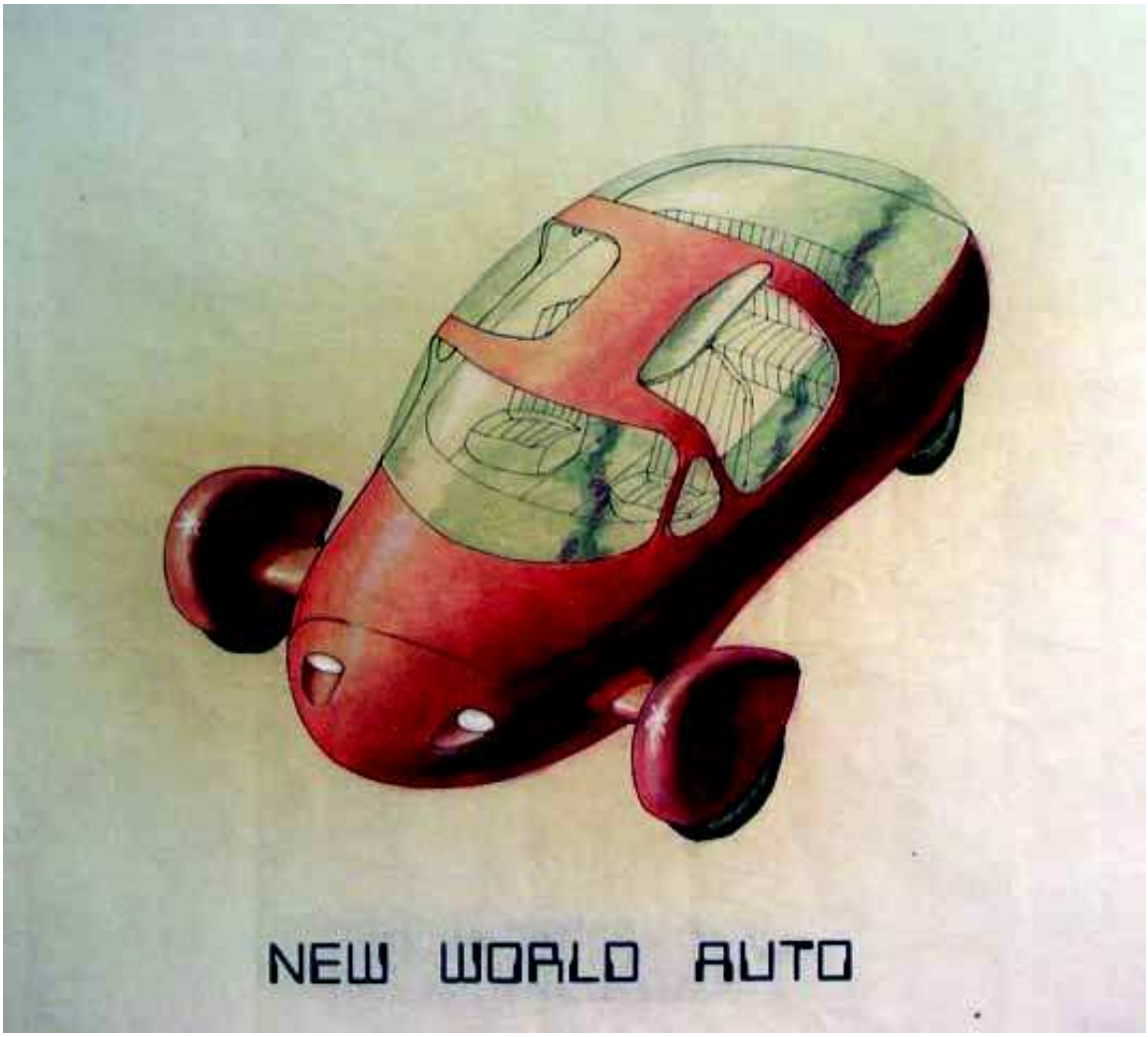
Archer: "What if we do not build this New World Auto ?"

Olson: "If we do not build it, then in twenty years, half of the US Treasury will be overseas and General Motors will be bankrupt."

You do not have to be a prophet or a visionary to see the obvious. Rep Archer was only one of many US Congressmen and elected officials that I presented this concept to in person. It is transparent that we have been systematically 'mislead' by our 'leaders' and that it is way past time for us to seriously design a livable new future.

Joseph A Olson, PE

April 11, 2011


NEW WORLD AUTO