

Bringing Heavy Vehicle Highway Safety Into The Twenty First Century By Solving The Hundred Year Design Oversight

The intent of this paper is to sound a wake up call about the critical need to recognize the long-standing heavy vehicle design oversight that is directly responsible for an inordinate amount of heavy vehicle driving fatigue, and related catastrophic highway accidents.

Over the many years, the commonplace lack of heavy vehicle directional stability has been the primary cause of driving fatigue that is responsible for an untold number of catastrophic heavy vehicle accidents.

During the development of the early automobiles, the designers had to accept available low cost solutions to their mechanical problems. As the size and weight of the early automobiles increased, the original steering lever was replaced with a steering wheel that was a more suitable way to steer the heavier vehicles, except that the steering wheel would stay turned after turning a corner. To achieve steering wheel returnability, a simple compromised solution was devised that is still in use on present day heavy over the road vehicles. The low cost compromised solution was to simply tilt the front axle aft at the top end to achieve a turning lift effect, so that the weight of the vehicle would tend to

return the steered wheels close to the on-center straight ahead position where the turning lift effect bottoms out and diminishes, allowing the steer wheels to become unstable. The resultant lack of precision on-center control of the steered wheels is a major contributing factor in the lack of heavy vehicle directional stability, that is a direct cause of driving fatigue and related highway catastrophic accidents. The tilted axle results in a steer wheel castering effect that also adds to lack of directional stability.

Steer wheel castering is primarily responsible for the excessive crosswind directional control problems that is a major source of driving fatigue and additional catastrophic highway accidents. Over the many years, the heavy vehicle design community has made amazing progress in solving the many serious function and reliability problems, except for the tilted axle concept that has been accepted throughout the heavy vehicle industry, and has become the conventional way of designing heavy vehicles for going on a hundred years. Therefore, it is not the intention of this paper to place blame, but rather to shed intensive light on the need for advancing the state of the art in heavy vehicle directional stability.

The Amazing Heavy Vehicle Operational Problems That Are Solved By The Howard Precision Steer Wheel Control System

The Precision Steer Wheel Control System assists the driver when going straight, by doing away with the tedious driver steering corrections required to keep a heavy vehicle tracking straight and under control, thereby doing away with the major source of heavy vehicle driving fatigue, and related highway accidents.

- The Howard Precision Steer Wheel Control System achieves an all new level of steer wheel tire blowout controllability, verified by numerous documented steer wheel blowouts where drivers report easy vehicle controllability, without the steering wheel fight that leads to highway accidents.
- The Howard Precision steer Wheel Control System makes a major improvement in crosswind drivability, by preventing the steer wheels from caster steering downwind, in response to the wind gusts.
- The Howard Precision Steer Wheel Control System completely eliminates the troublesome road wander problem that is caused by the unstable behavior of the wheels inherent to the outmoded tilted axle steering geometry.
- The Howard Precision Steer Wheel Control System does away with steering wheel pull on crowned or slanted roads, that is caused by steer wheels castering to the low side of the road.
- **The Howard Precision Steer Wheel Control System solves the costly long standing steer wheel premature tire wear problem, saving heavy truck and bus operators millions of dollars in operating expense that will pay for the new technology many times over.**

River City Products of San Antonio Texas is the dominate patent holder of Heavy Vehicle Precision Steer Wheel Control Technology.

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