



FOR IMMEDIATE RELEASE:

Military Aircraft Design Technology Used to Improve the  
Fuel Economy of Ground Vehicles.

Virginia Beach, Virginia, October 15, 2003 – SOLUS Solutions and Technologies today has announced the completion of real world demonstration testing of three prototype devices that improve the fuel economy of tractor-trailers trucks by more than 15%. The patent-pending devices employ the latest in military aircraft design technology to control the wind forces acting on a vehicle at highway speeds. The novel devices, with a combined installed cost of less than \$750.00, reduce the yearly operational cost of a single tractor-trailer truck by more than \$1500. These savings have the potential for direct savings to the trucking industry of more than \$3 billion per year. The inventions also provide improved safety by reducing aerodynamic instabilities and reducing the splash and spray that results in a reduced accident rate and reduced insurance costs. Other benefits include reduced wear and thus reduced maintenance on the engine, transmission, and brakes.

The SOLUS designs offer a unique blend of high technology and the practical utility required by the trucking industry. The patent-pending devices employ vortex flow-control technology to reduce the drag on the trailer while satisfying the manufacturing, operational, and maintenance requirements of the trucking industry. The drag on the trailer is concentrated in two primary areas the flow in the gap between the tractor and trailer and the flow in the base area.

The SOLUS team has employed "trapped vortex" design technology to not only eliminate the drag due to flow in the gap region but under certain conditions the "trapped vortex" technology will provide an aerodynamic "thrust force" which pulls the trailer forward. The base flow is controlled and the drag reduced with "vortex strakes" on the side and top of the trailer to create a virtual "boat tail" at the back of the trailer. The industry has known about the benefits of "boat tails" however existing devices have used various surfaces and panels that attach to the back of the trailer. These existing devices interfere with daily operations and increase maintenance of the vehicle. The SOLUS solution does not interfere with the door operation and by locating the "vortex strakes" on the trailer side and top the SOLUS inventions exploit "induced flow" effects to create both a "virtual boat tail" and reduce the drag force on the trailer wheels and undercarriage. The third technology is an advance "mud flap" system that uses "wind tunnel" design technology to reduce the undercarriage drag, wheel drag, and trailer base flow drag. The "wind tunnel mud flaps" convert the low velocity random flow under the trailer into a high velocity jet that is injected into the base flow to stabilize airflow behind the trailer.

Three low-cost patent-pending devices have been developed to control the wind forces acting on a ground vehicle at highway speeds. Real world test verification of the devices has demonstrated fuel economy improvements of more than 15%. Application of these devices to half of the tractor-trailer trucks operating within the United States would save over 2 billion gallons of fuel each year with an associated yearly cost savings of 3 billion dollars. The SOLUS technologies can also be applied to most other ground vehicles resulting in a yearly cost savings of more than 6 billion dollars. The projected economic benefits and resulting environmental benefits from the use of the SOLUS technologies directly support the objectives of the EPA's SmartWay Transport initiative, the DOE's Clean Cities Coalition, and the President's efforts at ensuring the nation's energy security. SOLUS is presently in discussion with several leading ground transportation companies to bring these products to market. For additional information on the SOLUS solutions and technologies and to discuss licensing opportunities, please contact Richard Wood, [news103@solusinc.com](mailto:news103@solusinc.com).

SOLUS – Solutions and Technologies was founded in 1997 to provide innovative aerodynamic and flow control technologies for the transportation, manufacturing and recreation industries. The SOLUS team members are national and international experts in aerodynamics and fluid mechanics with over seventy years of combined experience.

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