Slipstream – the new Aerodynamic solution by Solomon

- Reducing drag
- Improving aerodynamics
- Saving fuel.

10.67% saving in recent road test!!
The problem
With today's ever increasing fuel costs and the drive to help the environment, reducing operational costs through saving fuel is high on all agendas.

Actual Road Test Results
In recent road testing on the same chassis cab on the same day under the same conditions with the same driver over the same route the results were dramatic. The route was 50 miles in total in undulating terrain and the test was carried out on a high pressure day with very little wind allowing for the most accurate comparison. The results broken down yielded very positive news for fuel consumption.

The sculpted slipstream front end around the refrigeration unit complete with the vortex generator on the rear showed a fuel saving of 6.2% on open roads. When the 3D deflector was added to the vehicles the fuel saving rose to 10.3% as the combined aerodynamic features worked together.

Due to side skirts not always being feasible on a refrigerated rigid all the tests were carried out without them present.

These theoretically will further enhance fuel consumption.

At today's high pump prices, potential savings are huge. Based on 100,000 km's a year and a theoretical average fuel consumption of 7.5 mpg a 3.1% saving would yield £1,342 per year and at 10.3% the saving would be a colossal £4,460 per year. Either figure offers a short payback period and then huge savings from that point on in a vehicle's life.

There is the very obvious benefit for the environment too with CO2 emissions decreasing per mile.

These real world road tests are very encouraging making slipstream a real consideration for a lot of operations.

Obviously how short the technology payback period is depends on the type of route driven, typical speed’s, average miles per year and present fuel consumption.

Further tests are in the pipeline particularly with the side skirts and through feedback from the operators.

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www.solomoncommercials.co.uk
The Theory

The aim was to maintain as small a cross sectional area as possible. The size of the cross section at the largest point on the vehicle has a direct relationship on the aerodynamics. The smaller the cross section all other things being equal the better the drag coefficient and the more fuel efficient the vehicle will be. Solomon was extremely keen to design slipstream around the existing height of an operator’s vehicle so the impact didn’t need to offset any negative effect of increasing the height.

The smaller cross section also keeps the volume of air being refrigerated as small as possible helping fridge efficiency. Finally the types of work rigid’s undertake usually involve more confined spaces and the lower height helps operationally with bridges etc.

Whilst maintaining this cross section, it is important to increase the aspect ratio of the body where possible reducing it’s coefficient of drag improving the vehicle aerodynamics to save fuel.

The Result

Sculpting the existing sized fridge body to offer less resistance to the air can improve its aerodynamics. Overall height remains the same and the slipstream reduces the coefficient of drag at the front end and at the rear with the vortex generator. Using the dead space at evaporator height inside to taper the body down reduces the resistance at the front externally without impacting on the height of the load carried. The new purpose cut Deep section perimeter extruded aluminium cappings have a much higher aspect than traditional radius again reducing drag promoting cleaner airflow and aiding aerodynamics. These features alone of the slipstream help improve fuel efficiency but further add on’s of side skirts can further enhance the aerodynamics.

Suitable for many applications

The slipstream has been purposely designed to utilise the dead space around the evaporator and although it extends back 2.5metres this is nearer 2 metres internally meaning an internal bulkhead can still be placed as close as one metre of the front evaporator so whether single or dual temperature the design is applicable. Slipstream also works with longitudinal lanes particularly where there is a false roof design.

To see how slipstream technology can help reduce your operational costs in an environment of ever increasing fuel prices please contact the Solomon Sales team on 01706 211211.

Technical expertise is available to see how best to incorporate the features into your design.
In a recent road test the new slipstream saved 10.67% in fuel economy over the same body without the slipstream technology.

**Slipstream Aerodynamic Features**

- Slipstream tapered bulkhead and roof to suit over cab refrigeration unit with curved cant rails for improved drag coefficients
- High aspect aerodynamic deep section cappings for improved drag coefficients
- Rear Vortex recessed roof deflector integrated into the roof structure with shaped stainless steel back frame
- 3D roof deflector moulded to the shape of the refrigeration unit complete with cab side collars and integrated catwalk.
- Spray down spray suppression to reduce drag and spray
- Moulded side skirts fitted either side

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