



Windshield washer fluid reservoir heater

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Heated windshield washer fluid removes snow, ice, etc. better in the winter and removes bugs better in the summer. Improved cleaning performance should reduce washer fluid usage. This concept utilizes the heat that radiates from the surface of an Engine to heat the fluid in the Washer Fluid Reservoir by creating a Thermo Siphon effect, (which creates circulating flow in closed loop system through a difference in temperature from one side to the other), between the outside of the engine heated source and the windshield washer fluid reservoir.

A simple vertical tube attached to an engine heated source provides the heat source for the high temperature side of the Thermo Siphon loop. The circulating flow transfers waste heat from a location on the exterior of the engine into the Washer Fluid Reservoir via the heat transfer fluid circulating in the loop. A simple horizontal heat exchanger located in the reservoir near the bottom heats the washer fluid as it cools the low temperature side of the Thermo Siphon loop. A thermostat located in the heat exchanger side closes off flow in the Thermo Siphon loop when the washer fluid reaches the desired temperature. Both sides are connected via flexible hoses and filled with a temperature appropriate heat transfer fluid.

