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# DIESEL

**INDUSTRY NEWS**  
MAGAZINE FOR THE NZ HEAVY DIESEL REPAIRER

## THE PERILS OF THE DIESEL BUG

BY JENNY BAKER

**PATENTED DE-BUG UNITS** have no moving parts and are simple and easy to install inline. Here is the DE-BUG L140, used by 4x4, pick-up, private vehicle, small bus, small generator, farm machinery and smaller sailboat engine owners.

These bugs don't like magnets.

Microbial contamination of diesel can cause owners of diesel-operated vehicles serious problems, but a diesel bug bloom can be killed off easily and permanently.

Owner of De-Bug Advanced Diesel Solutions Jon Drumm says microbial contamination by bacteria, moulds and yeast of petroleum products is a widespread problem in the industry. Diesel fuel is a good food source for these organisms. Some reports have suggested that Biodiesel is even more susceptible to contamination than standard diesel.

Given optimum conditions aerobic diesel bugs can grow from a single cell weighing one millionth of a gram into a slimy algae mat weighing 10 kilograms within 24 hours. Other bugs grow more slowly but create problems during their development. For example, anaerobic or sulfur reducing bacteria produce hydrogen sulfide as a byproduct of their metabolism. Combined with moisture, this forms strong sulfurous acids.

Microbes and their byproducts can degrade protective coatings such as paints, rubber, and metal oxide films and destroy chemical corrosion inhibitors. Evidence of infestation is visible biological sludge, slimes, and surface or interfacial deposits. These occur mainly in the fuel tank but can also be seen to block filters.

This fuel (which can smell like rotten eggs) is unreliable and the consequences of using it could be dire. These include fuel filter clogging and blockage, coalescer malfunctions, engine wear, corrosion of and



Pictures courtesy of Diesel Clean

**Protect your diesel engine against  
microbial contamination.**

# DE BUG

97.5% efficiency in destroying the bugs in a single pass.  
Reduce smoky exhausts, increase fuel economy  
and extend engine life.

For more information phone Jon Drumm 021 223 2781  
ADVANCED DIESEL SOLUTIONS

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blockages in the fuel system, damage to in-line instruments and engine failure.

Mr Drumm says in the past infestations were typically treated by biocides. "However, many biocides are harmful chemicals and require careful handling by professionals.

"Adding biocides to the fuel system may actually cause more problems... dead cells collecting on the bottom of the tank can still find their way into the fuel system, potentially leading to blocked filters and further engine damage. And over time microbes may build up immunity to the biocides - occasional dosing can actually accelerate growth," he says.

Mr Drumm describes the De-Bug purifier, a static magnetic inline device, as a tested and proven way to protect engines against microbial contamination. Micro-organisms are very vulnerable to magnetic waves. Single-celled with a membrane surrounding each cell, electrically charged ions that travel across this membrane are essential for the organism's life: "Exposing the microbes to a strong, changing magnetic field, such as in the De-Bug, will ensure maximum destruction of the cells.

"This magnetic field in the unit is made possible by stacking three annular shaped permanent magnets on top of each other to form the patented Tri-Mag stack.



When the fuel and microbes flow between the magnets and through the centre of the middle magnet in the Tri-Mag™ pack, the flow path causes the microbial cells to experience the maximum levels of magnetic flux density from several different angles. This results in 24 changes in polarity of the magnetic field.

"This kills them – the De-Bug

has been proved to have a 97.5% efficiency in destroying the bugs in a single pass," he says.

The treated submicron particles then pass through the filter and burn up in the combustion process, helping reduce emissions.

Mr Drumm says installing a De-Bug even in an apparently uncontaminated engine will result in immediate benefits. These are improved fuel efficiency, reduced emissions, better protection of engine, filters, pumps and injectors, extended service life of filters, and a more reliable, efficient engine.

DE-BUG fuel treatment units are manufactured in New Zealand for local conditions and have been used by amongst others the armed forces, New Zealand fire service, Tranz Rail, Shell Oil, and the Mana coastguard.

Pick-up, private vehicle, 4x4, small bus, small generator, farm machinery, and smaller sailboat engine owners are keen customers of the DE-BUG L140. Operators of smaller commercial vehicles, 6 cylinder generators, smaller fuel bowsers, and agricultural equipment prefer the DE-BUG L500. Other models are the DE-BUG L1000, DE-BUG L5000 and DE-BUG Kerbside Pump Unit: KPU L9600.

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