



Cleaner Air with Selective Catalytic Reduction on 2010

In 2010, diesel engines on Pierce Apparatus's will include selective catalytic reduction (SCR) systems that are specifically designed to remove nitrogen oxides (NOx) which contribute to smog.

Although it is a simple technology we want our customers to know that it does need maintenance, mainly the regular addition of diesel emission fluid (DEF).

To get a general idea of how the SCR system works: Engine exhaust containing particulate and nitrogen oxide passes through the oxidation catalyst and the DPF, where particulate is trapped. Then it receives a dose of DEF from an on-board tank. The DEF – a urea solution similar to farm fertilizer – is converted to ammonia gas, which mixes with the exhaust. Then, inside the SCR the ammonia and NOx are converted to harmless nitrogen and water.

As you might guess, the DEF gets used up and has to be replenished (the engine will not run without it). Customers will need to refill it at about every second or third fuel fill. By 2010, most service stations that sell diesel fuel will also dispense DEF.

SCR technology is proven on hundreds of thousands of trucks and has been used in Europe for four years. The SCR catalyst requires no maintenance. In addition, because the engine will produce less particulate matter, the number of active DPF regenerations will be dramatically reduced, and the DPF service interval will be longer.

SCR is coming and we are prepared to help our customers adapt to it.

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A Stealthy Enemy

Help Protect Your Customers' Vehicles against New Road De-Icers

Road salt has always been tough on vehicle bodies. New de-icers like calcium chloride and magnesium chloride are much worse, and more and more street and highway departments use them.

These de-icers – some fleet operators call them “killer chemicals” – aggressively attack not just truck bodies but frames, suspension parts, brakes, and even electrical wiring. Protecting an apparatus requires enhanced techniques and maintenance.

The new de-icers, which cost less than salt, are usually sprayed on roads before snowfalls to keep ice from forming and to make snow plowing easier. Traffic on treated roads then kicks up the chemicals in a fine mist that permeates everywhere.

What makes these chemicals so harmful? They are hygroscopic, which means they draw moisture from the air. Road salt generally won't cause corrosion unless it is wet. The new chemicals essentially make their own moisture, pulling water even out of relatively dry air. So they can keep doing damage even when fire and emergency vehicles are just sitting in the firehouse.

What's worse, these chemicals have molecules about half as big as those of standard salt. They can fit into the tiniest cracks, slip under the heads of rivets, worm their way under paint, and even enter electrical connections and wick up the wires. The chemicals also have high surface tension, which makes them hard to wash off.



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One study by the Technology and Maintenance Council of the American Trucking Association estimated the cost of corrosion at \$2.4 to \$4 billion a year.

The makers of de-icing products are working to add corrosion inhibitors. Meanwhile, truck manufacturers are taking steps to protect their products, such as using galvanized panels, improving paints and coatings, providing corrosion protection fasteners, and developing rust-resistant brakes.

Along these lines, Pierce offers an option to paint the frame rails, thus adding thickness to the painted surface. We are also investigating other cost-effective corrosion preventative measures. Of course, there are things our customers can do – and that we can do when vehicles are in for service – to safeguard Pierce equipment. Below are some ways to minimize corrosion damage:

- Pressure-wash the undercarriage after driving in inclement weather.
- Apply a reputable commercial undercoating product to the undercarriage.
- Inspect the undercarriage often. If you find early-stage corrosion, clean the area, coat it with rust inhibitor, and paint it.
- Wax polished aluminum and stainless steel decorative accessories.
- Keep mud flaps in good condition to minimize spray.
- Hose out the radiator with plain water.
- Repair chips in paint as soon as possible.
- Don't drill unnecessary holes – and paint the edges where you drill.
- Don't splice wiring. Use shrink terminals for repairs.
- Don't poke through insulation to test wiring.
- Clean electrical connectors regularly with water and a wire brush, and coat them with dielectric grease.
- Keep floors where trucks are parked dry.

Let's not allow de-icers to eat away at the best fire apparatus on the road.

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