

EXHAUST SYSTEM

Selective Catalyst Reduction (SCR) System Operation

The SCR system reduces Oxides of Nitrogen (NO_x) present in the exhaust stream to nitrogen (N_2) and water (H_2O). The SCR contains a ceramic catalyst washcoated with copper and iron on a zeolite substrate. At the inlet of the SCR catalyst is a port for the reductant dosing module, followed by a grate diffuser and a twist mixer. When Diesel Exhaust Fluid (DEF) is introduced into the system, it finely atomizes in the grate diffuser and mixes evenly with exhaust gases in the twist mixer. During this time, the heat of the exhaust gases causes the urea to split into carbon dioxide (CO_2) and ammonia (NH_3). As the ammonia and NO_x pass through the ceramic SCR catalyst, a reduction reaction takes place and the ammonia and NO_x are converted to N_2 and H_2O .

The engine is able to run leaner and more efficiently because of the efficiency of the SCR system in eliminating the high NO_x levels produced under lean conditions.

