



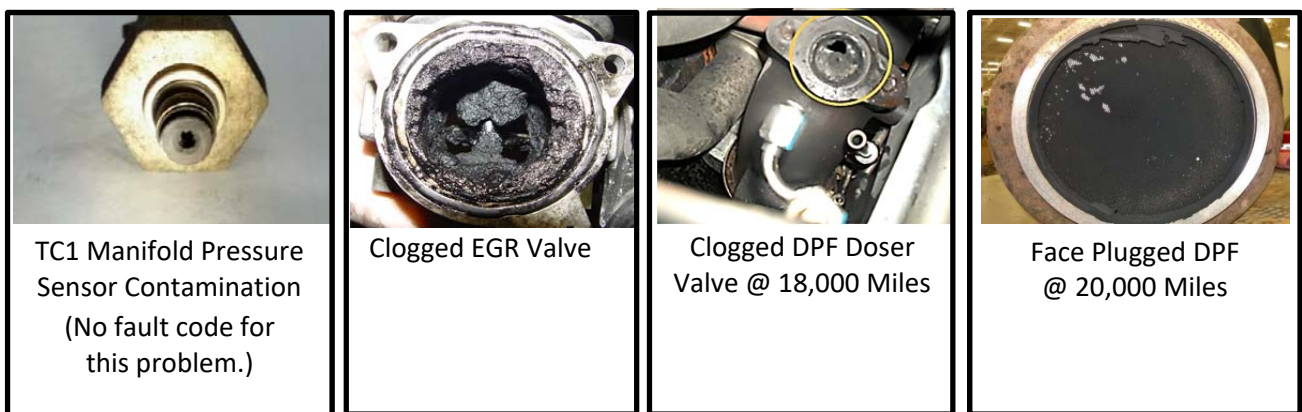
Plasma Systems for Removal of PM Soot from Engine Emissions

Paradigm of New York, LLC. has developed a device which removes particulate matter (PM) from engine emissions. The device has been tested extensively with on-road and stationary diesel engines in both EGR exhaust and Aftertreatment exhaust. Using the EPA’s gravimetric measurement process, this testing has demonstrated the following results in removing high percentages of PM.

	EGR Exhaust	Aftertreatment Exhaust	Aftertreatment Exhaust w/ DOC
Navistar Maxxforce 13 1200 RPM	-82%		
Navistar DT 466 (7.6L) 2000 RPM		-80%	
Ford International (6.1L) 50 MPH		-85%	-94.1%
CAT 7 (7.0L) 2000 RPM	CGR: -80%		
Cummins ISX (8.0L) 1800RPM/450 Torque		-83%	
Cummins ISL (8.0L) 0 MPH to 55 MPH	-64%		

Paradigm’s mission is to protect and enhance internal combustion engines by reducing the negative effects of PM in exhaust. Paradigm’s ability to remove most of the PM from exhaust and protect critical engine components translates into increased **“uptime” and productivity** for engines and reduced fuel and maintenance costs for customers. Paradigm’s reactor is an efficient pass-thru device minimizing pressure drop and fuel penalty. The Paradigm Plasma System is available as an up-fit retrofit for existing engines or as an OEM device for new engines.

Examples of PM contamination of the MAXXFORCE Engine:



Paradigm protects EGR and Aftertreatment exhaust systems from clogging, downtime and the need for expensive repairs. Paradigm’s patented* technology is easily scaled to adapt to a wide



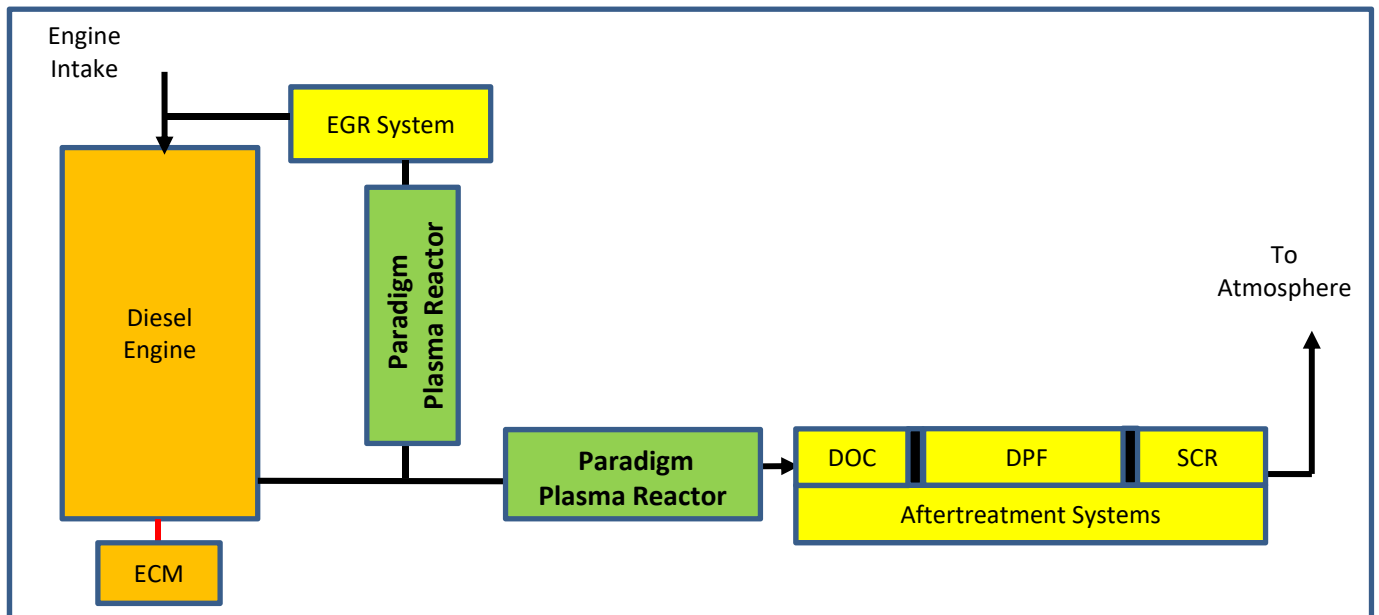
range of engine sizes. Its flexible design means it can be installed in most areas of the EGR and Aftertreatment exhaust systems.

Paradigm EGR System installed on a Navistar MaxxForce 13 diesel engine:



Paradigm Systems offer four key advantages:

1. No alteration of EPA approved existing control systems.
2. Up-fit existing systems with three plasma reactor placement goals.
 - a. Protect EGR and Aftertreatment components (doser, DOC, DPF) from PM contamination.
 - b. Enhance combustion and control systems by reducing PM exposure.
 - c. Integrate placements into strategic locations for ease of up-fit.
3. Continuous plasma system control of PM over numerous drive cycles and loads.
4. Ancillary reduction of SCR dosing demand through upstream NOx reduction.



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*US Pat No. 9,260,998 issued; US Pat No. 15/042,778; US Pat No. 62/299,549; and PCT/US 2017/019539 pending.