NEWS – September 2017 (last update 08.09.2017)

FAILURE CHART FOR DIESEL NOZZLES
for mechanical, Electronic and Common Rail systems

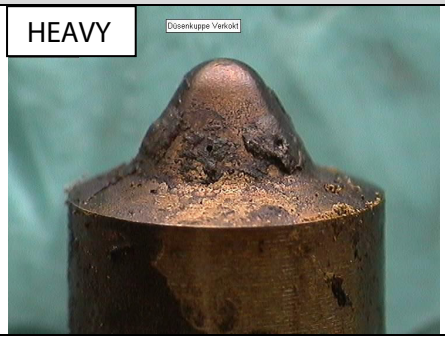
Fuel injectors, whether they are mechanical injectors or Common Rail or Electronic ones, play an important role in the optimal performance of the vehicle as well as in the failure. However, new engines are the most affected by poor quality fuel than older injection technologies. What used to be acceptable in the past can cause the engine to malfunction and often lead to expensive repairs. The three main reasons of failure are the following:

Fuel Contamination. The majority of diesel engine problems stems from contaminated fuel. Common problems include corrosion due to excessive quantity of water or micro fine particles in the fuel and improper fuel storage. There are two ways throughout which water can flow into the fuel: through the delivery system or the tank vent.

Poor Fuel Filtration. A common problem for Common Rail injectors is the erosion of the control valve, the heart of the injectors through which fuel passes at extremely high pressure. The opening passage is sealed by a pressurized ball whose size is only 1mm. A proper seal is critical for exact injector performance. Abrasive contaminants released during inadequate filtration can erode and damage the control valve and prevent the ball to seal. This can cause excessive smoke, starting or idling problems and potential engine failure.

Incorrect installation. Missing sealing rings, incorrect tightening torque, excessive use of grease, incorrect cleaning of the nozzle can cause poor performance, misfiring, black smoke to come on.

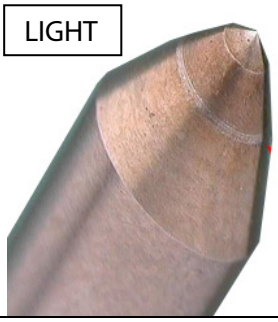
Check out in next pages our Failure Chart for nozzles.

CLAIM	
• Loss of Engine Power • Noise	
FAULT DESCRIPTION	
• Overheating • Carbon residues on nozzle tip	
CAUSES	
• Engine wear • Engine oil in the nozzle • Use of Biodiesel	• Poor quality of diesel fuel • Electronic Pump not working correctly
PICTURE	
	

CLAIM
• Loss of Engine Power
FAULT DESCRIPTION
• Decreased dimensions of the spray orifices
CAUSES
• Inadequate cleaning of the overheated orifices with a steel or rotary brush
PICTURE

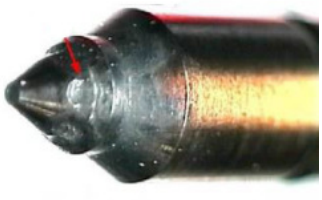

CLAIM	
• Decreased Engine Performance	
FAULT DESCRIPTION	
• Nozzle valve mechanical wear • Carbon residues • Nozzle leaks	
CAUSES	
• Valve rebound due to a wrong nozzle calibration	• Increased fuel flow • Contamination
PICTURE	

LIGHT



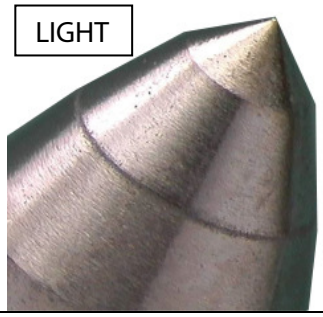
HEAVY

CLAIM	
• Decreased Engine Performance	
FAULT DESCRIPTION	
• Overheating • Valve seat is worn out	• Spray orifice prints on valve seat
CAUSES	
• Inadequate additives • Use of Biodiesel	• Engine oil is sucked by the combustion chamber. Increased clearance of nozzle body-valve • Diluted engine oil
PICTURE	

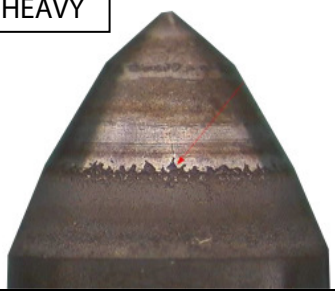


CLAIM
• Poor engine performance
FAULT DESCRIPTION
• Cavitation on the valve seat • Subsequent fault: valve seat wear, increased fuel flow, leaking
CAUSES
• Cavitation in the Electronic Pump (high pressure area)
PICTURE

LIGHT



HEAVY



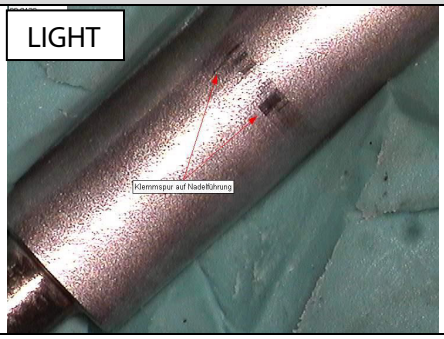
CLAIM	
• Poor engine performance	
FAULT DESCRIPTION	
• Yellowish to blackish residues on valve • Carbon residues	
CAUSES	
• Wrong calibration	• Valve rebound due to wrong nozzle calibration
PICTURE	

LIGHT

HEAVY

CLAIM	
• Decreased Engine Performance	
FAULT DESCRIPTION	
• Overheated, sticky valve. Valve wear, scratches on valve	
CAUSES	
• Nozzle assembly in the injector too tight • Particles/carbon and rust residues	• Fuel used is non-compatible with EN590 standard
PICTURE	

LIGHT



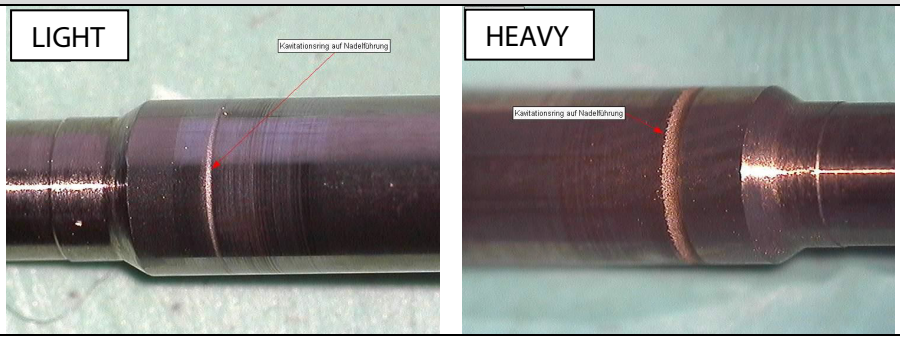
HEAVY

CLAIM	
• Decreased Engine Performance	
FAULT DESCRIPTION	
• Cavitation on valve shoulder • Subsequent fault: increased fuel flow	
CAUSES	
• Cavitation in the Electronic Pump (low pressure area)	• Mechanical wear on valve shoulder surface
PICTURE	

LIGHT

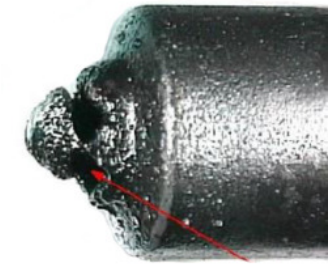
HEAVY

CLAIM
• Decreased Engine Performance
FAULT DESCRIPTION
• Cavitation on the valve guide • Subsequent fault: mechanical wear on the valve guide > clearance increase
CAUSES
• Cavitation in the Electronic Pump (high and low pressure areas)
PICTURE

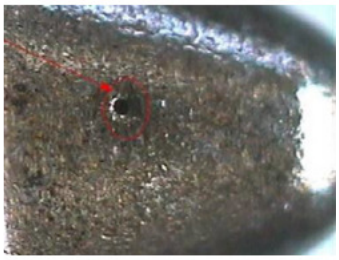


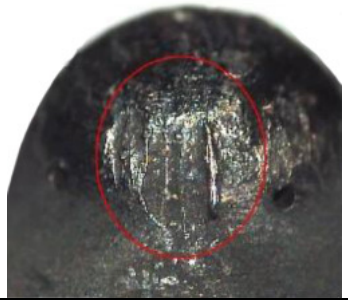
CLAIM	
• Decreased Engine Performance	• Noise
FAULT DESCRIPTION	
• Overheating • Nozzle body surface covered in stains	• Nozzle body and nozzle valve look bluish
CAUSES	
• Use of performance diesel fuel • Use of inadequate fuel additives	• Engine Oil is sucked by the combustion chamber. Increased clearance of nozzle body-valve • Diluted Oil
PICTURE	

CLAIM	
• Decreased Engine Performance	• Noise
FAULT DESCRIPTION	
• Overheating • Increased clearance nozzle valve-body	• Nozzle tip has fused
CAUSES	
• Use of performance diesel fuel • Use of inadequate fuel additives	• Engine Oil is sucked by the Combustion Chamber. Increased clearance of nozzle body-valve • Diluted Oil
PICTURE	



CLAIM
• Decreased Engine Performance
FAULT DESCRIPTION
• Decreased diameter of spray orifices
CAUSES
• Nozzle was cleaned in an inadequate way (mechanically, metal brush)
PICTURE



CLAIM
• Decreased Engine Performance
FAULT DESCRIPTION
• Mechanical Damage of the nozzle
CAUSES
• Residues found in the combustion chamber
PICTURE


CLAIM
• Decreased Engine Performance • Irregular engine progress
FAULT DESCRIPTION
• Corroded Filter Rod • Rusty Valve
CAUSES
• Water Contamination • Poor quality fuel • Poor filter quality, filter wear
PICTURE


CLAIM
• Decreased Engine Performance • Decreased engine power
FAULT DESCRIPTION
• Nozzle looks new. Remarkable layers of grease both inside and outside the nozzle body
CAUSES
• The inappropriate use of grease inside the nozzle causes problems with clearance and valve opening speed
PICTURE


No right for warranty. No first material or construction fault found.

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