

# DENNIS EAGLE

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## IMPORTANT INFORMATION

AdBlue®/Fuel/Oil Systems & Exhaust Silencers



**DENNIS EAGLE**

 RosRoca

## Products affected:

General Dennis Elite and specifically Dennis Elite Euro 4 & 5

*We are pleased to provide the following important information and instructions. Please follow this guidance and advise in order to maximise uptime, reduce costs and improve reliability. This information guide also publishes special offer pricing on heavy duty approved filters.*

## AdBlue good practice

To ensure the SCR (Selective Catalytic Reduction) system continues to perform effectively and is protected from the risk of damage you need to follow some simple rules to prevent AdBlue being compromised.

## How to handle and store AdBlue

Store AdBlue in ambient temperatures from 0°C to +30°C and protected from direct sunlight. If stored in sunlight it can start to decompose causing SCR components including the exhaust silencer to fail prematurely.

It is very important that no other product is added to the AdBlue, including tap water as it can damage your SCR components including the exhaust silencer within a short period of use.

AdBlue freezes at -11°. Once thawed it returns to its normal state and is OK to use.

## Vehicle AdBlue Tank

Dirt/Dust, oil, greases, detergents, chemicals and natural products including tap water must be prevented from entering the AdBlue tank.

The SCR system will be damaged if dust or dirt enters the AdBlue tank clogging the filters in the urea dosing system resulting in poor SCR performance. Keep the urea tank clean at all times.

Only use dedicated AdBlue equipment available on the market when storing or refilling AdBlue tanks. Keep your AdBlue equipment clean at all times.

Only use demineralised water or AdBlue when cleaning SCR system components including the tank.

## Filling the AdBlue tank with diesel

If the engine is started even for a short time then diesel will poison the exhaust silencer which is costly to replace and is unwarrantable damage resulting in downtime and unforeseen maintenance bills.

## Adding AdBlue to any other system

AdBlue is not compatible with certain materials including various metals. As an example if AdBlue is added to engine coolant it will eat away at any copper components in the system which includes injector sleeves, heater matrixes etc. If this does happen the system will need to be flushed thoroughly with clean water before replenishing with coolant.

## Contaminated AdBlue or inferior quality (IE: does not meet standards set in ISO 22241) may cause detectable damage to the vehicle's SCR system.

Using AdBlue that does not meet ISO 22241 will invalidate any warranty claims relating to the vehicle's SCR exhaust injection system or catalyst.

On Board Diagnostics (OBD) are able to detect when the SCR system is not performing efficiently. If the SCR is not performing efficiently the truck will go into de-rate causing operator downtime and the need for an unscheduled workshop visit.

## What happens if I replace AdBlue by water/urea solution or if I override the system?

Water or contaminated urea solution will cause easily identifiable damage, including a build-up of calcium deposits from the minerals found in water and urea solution. Gradual degrading and clogging of the SCR system will result in costly replacement parts, reducing efficiency and lost time. These repairs will not be covered by the vehicle's warranty if that damage was caused by water, or urea solution.

## What not to do

- ✗ Do not put AdBlue into the diesel tank
- ✗ Do not put diesel into the AdBlue tank
- ✗ Do not mix AdBlue with water or any other liquid
- ✗ Do not use AdBlue if contaminated with any other liquid
- ✗ Avoid spilling AdBlue on the ground as the surface can become slippery and can decompose concrete or brickwork. Use water to wash away
- ✗ Do not operate your vehicle without AdBlue. It is illegal to do so and can/will result in the truck de-rating
- ✗ Do not use equipment such as funnels, jugs or containers that have been used for any other liquids for filling the AdBlue system.

## Fuel management – best practice

### Fuel quality and condition impacts your engine significantly.

For example it can be linked to:

- Injector wear and seizing
- Fuel pump failures
- Fuel wash and upper cylinder wear
- Excess soot generation
- Fuel filter plugging / blocking
- Lube oil additive depletion.

### Environmental impact & safety

Since fuel is combusted, this has significant environmental implications surrounding air quality and emissions as well as safety regulations regarding flashpoints during transportation.

### Specification, Taxation & Warranty

Engine OEMs need consistency in the products being used as fuel so that their machinery can be designed to run safely and efficiently at all times. Overall, a fuel health check determines if your fuel is fit for use and whether it requires purification, addition of further additives / biocides or simply needs purging from your machinery system.

Fuel contamination is a fact of life. Preventing problems and equipment damage associated with contaminated fuel is primarily the responsibility of the end user.

These responsibilities include the proper and timely replacement and servicing of the filters; selection of the fuel source, grade, and blend; and use of heaters, separators and additives as required.

Fuel filters capture unwanted contaminants from the fuel. Left unchecked, these contaminants may cause serious and expensive damage to many system components including pumps, lines, and injectors. Fuel contaminants have many sources. Most sources are external to the fuel system itself, that is, most contaminants come with the fuel that is delivered to the fuel tank. As it comes from the refinery, diesel fuel is generally clean. Contaminants in diesel fuel are typically introduced in fuel storage systems through mixing, transferring and storage.

Fuel filters, by design, become more restrictive to the flow of fuel as they go about their job of removing contaminants from the fuel system. Fuel systems, unlike lube systems, do not have the opportunity for bypass flow and consequently, as flow through the fuel filter becomes restricted or blocked, loss of engine power will result, reducing efficiency and causing lost time. Incorrect fuel filters that do not meet our micron levels will allow system contamination. Only Dennis Eagle heavy duty approved filters should be used. Lack of regular filter changes can increase the risk of fuel filter breach when elements become excessively blocked.

Water is the greatest concern because it is the most common form of contaminant. Water may be introduced into the fuel supply during fuelling when warm, moisture laden air condenses on the cold metal walls of fuel storage tanks or from poor housekeeping practices. The effects of water in diesel fuel can be serious. Water can cause damage to injector components and reduce the lubricity of the fuel which can cause seizure of close tolerance components such as those found in fuel pump assemblies.

Water can be removed from diesel fuel by using in-line water separating filters or devices. Long-term prevention of problems associated with water in fuel is best accomplished by obtaining fuel from reputable suppliers capable of providing high quality fuel. Further, tanks should be kept as full as possible to prevent condensation. Fuel should be drawn from the top of a storage tank if possible, as water is heavier than diesel fuel and tends to settle to the bottom of tanks. Tanks can also be kept free of water with continuous off-line or 'kidney-loop' filtration/separation.

The effects of diesel fuel contamination:

- Low power from the engine
- Reduced engine RPM
- Increased fuel and oil consumption
- Poor cycle times or low speed
- Smoke
- Lower gear selection
- Noise
- Poor starting
- Poor idle
- Rotten fuel smell or black smoke from vehicle exhausts.



## Oil management – best practice

Problem	Common Causes	Potential Result	Advice
High Viscosity	<ul style="list-style-type: none"> <li>Contamination with a high viscosity product e.g. grease</li> <li>Aging of an oil (oxidation etc.)</li> <li>Excessive sooting</li> <li>Incorrect lubricant used</li> <li>Leaking head gasket/coolant leak/water ingress.</li> </ul>	<ul style="list-style-type: none"> <li>Increased cost</li> <li>Engine overheating</li> <li>Harmful deposits or sludges</li> <li>Blocked filters</li> <li>Component seizure.</li> </ul>	
Low Viscosity	<ul style="list-style-type: none"> <li>Contamination with a low viscosity product e.g. diesel</li> <li>Normal mechanical working of a fluid in multi-grade products (Polymer shear)</li> <li>Incorrect lubricant used.</li> </ul>	<ul style="list-style-type: none"> <li>Increased cost</li> <li>Poor lubrication</li> <li>Metal to metal contact.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm oil grade</li> <li>Check air to fuel ratio</li> <li>Inspect internal seals</li> <li>Check unit for excessive heat</li> <li>Check for leak injectors and fuel lines</li> <li>Change oil (small volume systems) or top-up/renew with new oil on larger volume systems to bring back to correct oil viscosity - Send a sample of used and new oil to your Lubetrend Lab laboratory to help find volume required to achieve this</li> <li>Change oil filter</li> <li>Inspect temperatures to localise hotspots (in and out of engine and cooler)</li> <li>Confirm oil level and top-up changes.</li> </ul>

Problem	Common Causes	Potential Result	Advice
High Nitration	<ul style="list-style-type: none"> <li>Improper expulsion of gases from cylinder (scavenge)</li> <li>Abnormal blow-by</li> <li>Very high temperatures.</li> </ul>	<ul style="list-style-type: none"> <li>Increased cylinder wear</li> <li>Increased acid number (AN), oil thickening and acidic by-products</li> <li>Increased viscosity</li> <li>Reduced BN.</li> </ul>	
High Oxidation	<ul style="list-style-type: none"> <li>Overheating</li> <li>Over-extended drain interval</li> <li>Excessive blow-by.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced life of equipment</li> <li>Increased viscosity</li> <li>Increase AN, reduced BN</li> <li>Decreased engine performance</li> <li>Increased wear</li> <li>Decrease filter life and increase filter blocking.</li> </ul>	<ul style="list-style-type: none"> <li>Shorten oil drain interval</li> <li>Check for excessive unit heat</li> <li>Check crankcase venting correctly</li> <li>Compression check system</li> <li>Ensure proper air/fuel mixture</li> <li>Consult oil supplier for alternative lubricants.</li> </ul>

Problem	Common Causes	Potential Result	Advice
High Acid Number and/or Low Base Number	<ul style="list-style-type: none"> <li>Overheating</li> <li>Excessively extended drain interval</li> <li>Wrong lubricant</li> <li>High sulphur fuel.</li> </ul>	<ul style="list-style-type: none"> <li>Decreased BN</li> <li>Corrosion</li> <li>Oil thickening and sludging</li> <li>Increased wear</li> <li>Filter blocking</li> <li>Component seizure.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate oil drain interval</li> <li>Establish new baseline BN/AN values</li> <li>Change oil</li> <li>Submit fuel sample for analysis</li> <li>Submit coolant for analysis.</li> </ul>
High Base Number	<ul style="list-style-type: none"> <li>Wrong oil added/topped up</li> <li>Cylinder oil contamination.</li> </ul>	<ul style="list-style-type: none"> <li>High Ash (SAPS) production</li> <li>Wasted cylinder oil.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce cylinder oil fuel rate</li> <li>Confirm correct lubricant in use.</li> </ul>

Problem	Common Causes	Potential Result	Advice
Increases cleanliness code (dirtier lubricant)	<ul style="list-style-type: none"> <li>Water contamination</li> <li>Incorrect sampling and flushing before sampling</li> <li>Inefficient filtration</li> <li>Recent oil change.</li> </ul>	<ul style="list-style-type: none"> <li>Engine gelling and seizure</li> <li>Poor fuel efficiency/ mpg</li> <li>Blocked filters</li> <li>Reduced filter life</li> <li>Increased wear</li> <li>Carbon deposits.</li> </ul>	
High Soot	<ul style="list-style-type: none"> <li>Poor fuel quality</li> <li>Low compression</li> <li>Worn engine rings</li> <li>Defective spraying</li> <li>Improper air/fuel ratio</li> <li>Excessive oil house.</li> </ul>	<ul style="list-style-type: none"> <li>Engine gelling and seizure</li> <li>Poor fuel efficiency/ mpg</li> <li>Blocked filters</li> <li>Reduced filter life</li> <li>Increased wear</li> <li>Carbon deposits.</li> </ul>	<ul style="list-style-type: none"> <li>Change oil</li> <li>Change filters</li> <li>Assess if drain intervals need changing</li> <li>Reduce excessive idling</li> <li>Check air induction and turbos working correctly</li> <li>Check injectors not excessively dosing system.</li> </ul>

# Service instructions – Reminders, revisions and special parts price offers

## Fuel systems

(All prices +VAT. No further discounts apply)

Our best advice to protect fuelling systems is to adopt the following revised guidance: Only use heavy duty primary and engine fuel filters.

### Primary Fuel Filter

(part number 21088101).  
**Special offer price £42**  
**(normal price £53.85)**

### Engine Fuel Filter

(part number 21276079).  
**Special offer price £20**  
**(normal price £25.21)**

These are only available at this price from Dennis Eagle. We do not stock any other filters which could fit the system though at an incorrect specification, this could lead to potential engine contamination.

- Increase both primary (sediment) and engine fuel filters for changes 4 times per year based on 2,600 operating hours per year.
- Drain at each safety inspection the water trap (below the primary filter) (as per our standard service manual).

(Prices valid until 1st January 2017).

## Silencers

(All prices +VAT. No further discounts apply)

Please monitor vehicle running hours and duties. Where possible regularly rotate vehicles to ensure a mix in duty cycling so that vehicles include 'on highway' running at higher road speeds.

Dennis Eagle are able to offer a service exchange silencer service for euro 4 and 5 trucks.

### Euro 4 Silencer

(part number 21583432)  
**£1,200.00 (plus old unit surcharge £350**  
**if condition unsuitable for reconditioning).**

**New unit price £2,923.65.**

### Euro 5 Silencer

(part number 21583715)  
**£1,200.00 (plus old unit surcharge £350**  
**if condition unsuitable for reconditioning).**

**New unit price £2,923.65.**

Please refer to Dennis Eagle EPC by chassis serial number to determine correct part number above.



# Customer Support Information

## Local Service Centres

For the following requirements:

- Workshop repairs
- Technical assistance

Please contact your local Service Centre  
(See opposite for telephone numbers)

## Parts

Contact the Parts Desk at Warwick.

Phone: 01926 458555

Fax: 01926 435652

Email: [partsdesk@dennis-eagle.co.uk](mailto:partsdesk@dennis-eagle.co.uk)

Opening hours (excludes Bank Holidays)

Mon – Thur 08.00 – 18.00

Fri 08.00 – 17.00

Sat 08.00 – 12.00

## Technical Training

For information on courses please telephone

Phone: 01926 459550

# Service Centre Locations



