



UD TRUCKS

AdBlue® Use and Handling



Condor

If **ANY** fluid other than AdBlue® or DEF is put in the AdBlue® tank **DO NOT** turn the Ignition

Key ON

(Refer inside for corrective action)



Quon

What is AdBlue® also known as Diesel Exhaust Fluid?

AdBlue® or Diesel Exhaust Fluid (“DEF”) is a mixture of urea and demineralised water, manufactured to meet one of the following stringent automotive standards: ISO 22241 or DIN 70070. Urea, as a substance, is commonly used as fertilizer and was first developed in 1828. It is also used in the manufacture of many cosmetics.

Why is AdBlue® required by some trucks but not others?

To further reduce pollution and Greenhouse gases, countries around the world are introducing ever more stringent diesel exhaust emission regulations. To meet these regulations truck (and car) manufacturers have developed two different methods of exhaust treatment, these are:

1. EGR - Exhaust Gas Recirculation
2. SCR - Selective Catalytic Reduction (requires AdBlue®)

The Benefits of SCR (vs. EGR)

1. LOWER CO₂ (Greenhouse gas) emissions
2. REDUCED fuel consumption
3. LOWER engine operating temperatures
4. LONGER engine life
5. LONGER engine oil drain intervals
6. NO specialist engine oil required

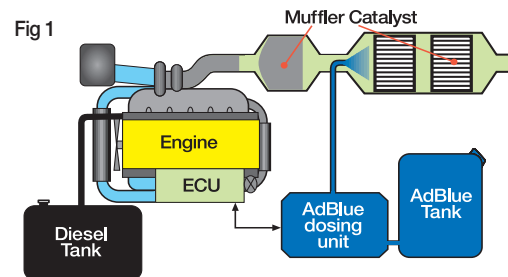
Due to these benefits, UD Trucks have adopted SCR technology for our Medium Duty *Condor* and Heavy Duty *Quon* truck models achieving emission levels meeting and exceeding Euro 5 respectively.

It is widely accepted that all truck manufacturers will need to use AdBlue® in meeting future Euro 6 emission regulations.

How does SCR technology work?

In an SCR engine, the combustion process in each cylinder is designed for maximum efficiency. This reduces Particulate Matter (PM) also known as “soot”, to almost zero. However, an engine tuned for maximum efficiency produces quite high levels of Oxides of Nitrogen (NOx) gas.

By injecting AdBlue® into the exhaust stream via a muffler/catalyst, NOx is chemically decomposed into Nitrogen (N₂) and Water (H₂O). The following diagram shows the layout of UD’s SCR system.



Is This Technology New? Well Yes and No!

In 2004, UD Trucks were the first truck manufacturer in the world to introduce SCR technology to the road transport industry. So it is quite new. However, one of the first reported uses of this technology was as a means of controlling the exhaust emissions of diesel generators used in English hospitals during the black outs of the First World War. So the technology has been around for about 100 years and is well proven.

The AdBlue® (SCR) system on your UD truck

Only use CLEAN and UNCONTAMINATED AdBlue® in your UD truck. AdBlue® is stored on the truck in a tank made of plastic on *Condor* models (fig 7) and stainless steel on *Quon* models (fig 13). It has a BLUE cap that is lockable to prevent tampering. The filler neck incorporates an ISO compliant filling adaptor. This adaptor is designed to be used with a suitable filling nozzle. The filling nozzle has an integrated valve and must be fully inserted into the neck for filling to proceed. It is possible to manually add AdBlue® from a suitable, portable tank or container. In this case, use a clean nozzle/spout with a tip diameter of 19mm or less.

It is strongly recommended that AdBlue® is not stored in the cabin of the truck due to the possibility of spill or leakage.

The AdBlue® is supplied to the exhaust by means of a dosing module which incorporates a pump and filter (refer to: Owner’s Manual for the maintenance schedule). This module is controlled by the Engine ECU to ensure the correct amount of AdBlue® is supplied to the exhaust to control emissions.

Note: The location of all parts in the AdBlue® system is critical for correct emission control. Modifications to the AdBlue® (SCR) system and its components, including the exhaust, are NOT permitted. Refer to MD-T and HD-T Body Installation Manuals available at www.udtrucks.com.au.

The AdBlue® pump starts priming the dosing system as soon as the Ignition Key is turned ON. The dosing system is in continuous use while the engine is running and continues to operate for up to 2 minutes after the ignition is switched OFF. After the engine is shut down you may hear the sound of fluid returning into the tank, this is normal and is not a malfunction.

Caution: As the dosing system continues to operate for up to 2 minutes after the ignition is switched OFF, wait for more than 2 minutes before either disconnecting the vehicle’s battery (-) then (+) terminals or replenishing the AdBlue® tank.

Exhaust outlet

As SCR is a chemical process, the exhaust gas can smell different to a conventional diesel vehicle. In addition, some “white smoke” might be seen from the exhaust pipe when the engine is started, this is only water vapour (steam). Do not touch this vapour as it may be slightly acidic. If it makes contact with skin or clothes flush the area generously with water.

How much AdBlue® will my UD truck use?

Your UD truck will typically use less AdBlue® in “stop-start” city driving and a little more out on the highway. As a percentage of diesel fuel used, you can expect to use between 3-6% AdBlue®. That is, for every 100L of diesel used you will use 3-6L of AdBlue®.

Note 1: Engine Control Warning Light (Fig 5 & 11) The engine control warning light may not go out even after AdBlue® is added. In this case, turn the ignition key to the OFF position, wait for approximately 10 seconds and then restart the engine.

Note 2: SCR Fault Warning Light (Fig 6 & 9) If there is a malfunction with the AdBlue® pump module, the SCR Fault warning light will remain illuminated. If this happens contact your UD Trucks Dealer.

The AdBlue® (SCR) system on your *Condor* truck AdBlue® Indicators

The AdBlue® gauge is located inside the cab on the left hand lower side of the instrument panel (Fig 2), indicating the approximate level of the AdBlue® in the tank.

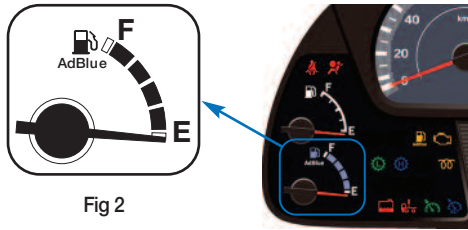


Fig 2

As the level in the AdBlue® tank diminishes, the following warnings will be displayed:

- When the volume in the tank falls to approximately 6 litres the AdBlue® Low Level warning light (Fig 3) and the AdBlue® Low Level warning message (Fig 4) will turn ON, indicating it's time to refill the AdBlue® tank (Fig 7).

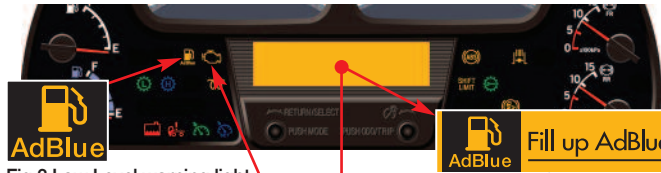


Fig 3 Low Level warning light

Fig 4 Low Level warning message



Fig 5 Engine Control (refer note 1)



Fig 6 SCR Fault (refer note 2)

- Should the vehicle continue to be operated and the AdBlue® tank becomes empty, the Engine Control warning light (Fig 5) will turn ON (flashes) and simultaneously the engine performance will be reduced by 40%. Operation of the vehicle in this reduced performance mode contravenes emission regulations. Immediately refill the tank with a MINIMUM of 15 litres of AdBlue®, this will cancel the warning message.
- When filling, observe the lower vent/sight aperture in the filler neck (Fig 7) to avoid overfilling or spillage.

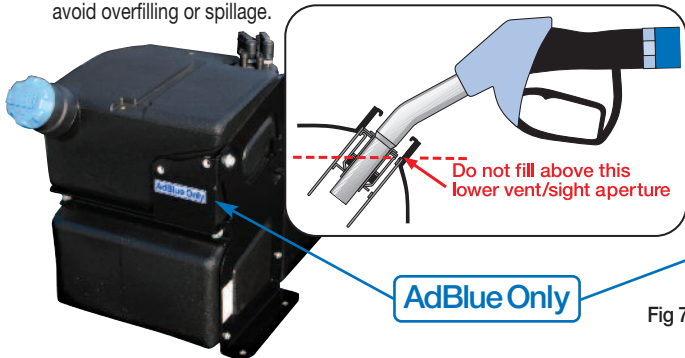


Fig 7

The AdBlue® (SCR) system on your *Quon* truck AdBlue® Indicators

There are two methods of checking the AdBlue® level:

1. The AdBlue® LED level indicator is located on the left hand side of the dash (Fig 8), indicating the approximate level of AdBlue® in the tank.

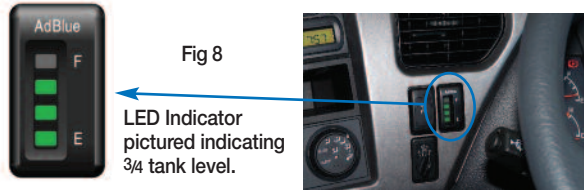


Fig 8

LED Indicator pictured indicating 3/4 tank level.

2. On the side of the AdBlue® tank is a sight tube (Fig 13 and 14). Generally used only when filling with AdBlue®. The sight tube will indicate the top 10L (approx.) of the overall tank capacity.

When the tank is full, all 4 LED lights will be ON. As the level in the AdBlue® tank diminishes, the following warnings will be displayed:

- Each 1/4 of a tank drop in AdBlue® will be indicated by one LED turning OFF. When the level of AdBlue® is low, 1 LED ON, the Low Level warning light (Fig 12) will turn ON, indicating it's time to refill the AdBlue® tank (Fig 13).

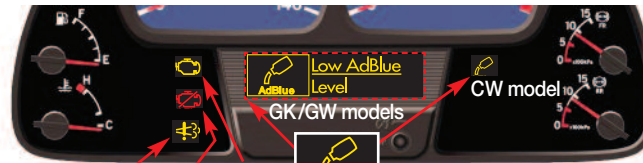


Fig 12 Low Level warning light

Fig 11 Engine Control (refer note 1)

Fig 10 Empty warning light

Fig 9 SCR Fault (refer note 2)

- When all LED lights go OFF, the tank has approximately 3 litres left before the RED Empty (Fig 10), SCR Fault (Fig 9) and Engine Control (Fig 11) warning lights come ON and a buzzer will sound. The truck will continue to operate, however the engine will NOT restart once the ignition key is turned OFF. Immediately refill the tank with a MINIMUM of 15 litres of AdBlue®, this will cancel the warning message and allow the truck to be restarted.
- When filling, observe the sight level tube on the side of the tank (Fig 13) and fill to the arrow mark on the tank (Fig 14), filling higher than the arrow mark could cause the tank to overflow.



Fig 13



Fig 14

Handling and Storage of AdBlue®

1. AdBlue® is a colourless, transparent and harmless chemical liquid, consisting of approximately 33% urea and 67% demineralised water. Therefore it is a safe substance even if spilt onto the body or clothes. AdBlue® has a slight ammonia odour.
2. No qualifications, permits or licences are required for the handling or storage of AdBlue®.
3. While AdBlue® is a safe liquid; it may cause slight skin irritation for some people. Avoid breathing the fumes, gas, vapour or spray. If spilt onto the body, clothes or ground flush the area generously with water. For larger spills, first dilute with large amounts of water and refer to local regulations for disposal (due to Nitrogen content). Diluted AdBlue® can be used as a fertilizer (refer to the "DO's and DON'Ts" section of this brochure).
4. If AdBlue® comes into contact with the eyes; wash out immediately with fresh running water. If irritation continues seek medical attention. If swallowed do not induce vomiting. For ingestion of small quantities (a mouthful or two) drink 1 to 2 cups of water and seek medical advice. For ingestion of larger quantities seek immediate medical attention.
4. AdBlue® is non-flammable, but it should be moved to a safe location if there is a fire, as intense heat may cause the sealed storage container to pressurise and possibly rupture.
5. AdBlue® should be stored in the manufacturer's original container and kept in a cool, covered area with good ventilation and out of direct sunlight. This will prevent water loss due to evaporation and ensure 1-2 year's product life.
6. AdBlue® freezes at -11.5°C. When it thaws, the product will return to its initial quality.

Contaminated AdBlue®?

If the AdBlue® in your UD truck becomes accidentally contaminated (for example with: Diesel, Petrol, Kerosene, Oil, Coolant, Paint, Rust etc.) **DO NOT** turn the Ignition Key ON. Doing so will cause the dosing pump to prime the AdBlue® (SCR) system with contaminated AdBlue®. This will result in pump damage. Contact your supervisor, or your UD Trucks Dealer - 1300 BUY A UD (1300 289 283)

ECO
FLEET

SAVE MONEY AND THE EARTH

Where can I buy AdBlue®?

The Australian AdBlue® network is continually growing. Currently AdBlue® is available at your UD Trucks Dealer (over 40 locations) and selected BP®, Caltex® and Shell® filling stations across Australia. Your company can also purchase AdBlue® directly, in bulk storage containers that can be located at your business (or customers) site/s. Your UD Trucks salesperson can discuss the best AdBlue® supply solution for your needs.



1,000 litre IBC
Suppliers: Air1®
and NoNox®



210 litre drum
Suppliers: Air1®
and NoNox®



10 litre pack with
pouring spout
Supplier: Air1®

A range of special electric and manual pumps are available for the 210 litre and 1,000 litre bulk containers. Consult your UD Trucks Dealer or AdBlue® supplier. **DO NOT** use non approved pumps with AdBlue®.

Availability: UD Trucks Dealer (also Volvo and Mack Dealers)
Product Name: Air1®
Contact Details: 1300 BUY A UD (1300 289 283) - for your nearest Dealer

Web Site: www.udtrucks.com.au

Filling Stations: Selected BP®, Caltex® and Shell®

Supplier: Yara Australia Pty Ltd
Product Name: Air1®
Contact Details: Free call - 1800 775 475
Web Site: www.air1.info

Supplier: NoNOX® Australia Pty Ltd (Tennant Limited)
Product Name: NoNOX®
Contact Details: Free call - 1800 466 669
Web Site: www.nonox.com.au

Sat-Nav: If your truck audio unit incorporates the UD Trucks Satellite Navigation feature, your nearest AdBlue® retailer can be found by simply pressing the Pol (Points of Interest) button on the touch screen. (Refer to your UD truck Sat-Nav instructions).



Use of AdBlue®

- Use only AdBlue® or DEF branded product in your UD truck.
- If the AdBlue® in your UD truck becomes accidentally contaminated **DO NOT** turn the Ignition Key ON. Even a very short run time will damage the AdBlue® (SCR) pump module. Refer "Contaminated AdBlue®" instructions in this brochure.
- AdBlue® is **NOT** a fuel additive and must **NEVER** be added to your truck's fuel (diesel) tank.
- AdBlue® **MUST** always be kept **CLEAN** and free from dirt, dust, foreign materials and liquid contaminants. This includes: containers, pumps, funnels, hoses etc. used to store and transfer AdBlue®.
- AdBlue® will react with some materials, such as: steels, aluminium, copper, brass, zinc etc. causing contamination. **ONLY** stainless steel (Grade 304 or better), plastics of PP (polypropylene) or PE (polyethylene), natural rubber, neoprene and viton can be used for AdBlue® containers, pumps, hoses etc.
Caution: Containers and pumps with internal plating or paints must **NOT** be used.

DO's and DON'Ts

- ✗ **DO NOT** ever use contaminated AdBlue®
- ✗ **If ANY fluid other than AdBlue® is put in the AdBlue® tank DO NOT** turn the ignition key ON
- ✓ **For peace of mind DO fill up with AdBlue® before you leave**
- ✓ **DO keep AdBlue® CLEAN**
- ✓ **DO only use approved containers and pumps**
- ✓ **DO only use CLEAN containers, hoses, funnels, pumps etc.**
- ✓ **DO flush and wash away any spills or splash with WATER**

How "GREEN" is AdBlue®?.....it's VERY "GREEN"!



If you have any doubts, try using a little AdBlue® as a fertilizer on your plants or lawn! Mix 100ml of AdBlue® with 1 litre of water (1:10 ratio), then apply using a watering can (water as per normal). Use only once a month and avoid direct contact with the foliage of sensitive plants.....and be the new "GREEN THUMB" in your street!

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