

TARGET TAXIS

RESPONSE TO FORMAL CONSULTATION

TO AMENDMENTS TO

HACKNEY CARRIAGE

AND PRIVATE HIRE POLICY

Target Taxis Limited
55A South Nelson Ind Est
South Nelson Road
Cramlington
Northumberland
NE23 1WF
01670 712244

11.01.2020

Response to formal consultation to amendments to Hackney Carriage & Private hire licensing policy

Proposal 1.

New Vehicle Licenses

The proposal is that vehicles must be less than 4 years old when first licensed meaning that Euro 6 emission standard applies from April 2020 .

Reply

The current policy which is Euro 5 for passenger cars & Euro 4 for light commercial only came in April 2017 some vehicles will have been purchased just before this proposal came out 25th October 2019 which if the policy is agreed will still be financed but will no longer be allowed to be operate leaving drivers and operators in a financial black hole will the local authority compensate drivers and operators for the outstanding financial shortfall.

Would the local authority help financially towards drivers and operators upgrading vehicles to Euro 6 if policy amendments go ahead?

Some Euro 5 & Euro 4 vehicles are as clean if not cleaner than current Euro 6 emission standards these vehicles should also be allowed to be licenced based on there emission standards as many have very little CO2 output surely clean engine vehicles should not be excluded.

Maybe hold off on implementing Euro 6 until the future is a little more certain ie electric ranges prices and size of vehicles available in the next few years.

If Euro 6 is introduced how long will the trade be given before Euro 7 is then proposed as vehicle manufacturers are already investigating this Euro standard and we have only had Euro 5 for 2 years.

Introducing Euro 6 less than 4 year old policy will put a huge financial strain on drivers and operators which could lead to job losses across the county not just taxi drivers there are many supply chains connected to the trade which could be affected and should also be considered.

Mental health needs to also be addressed when adding large financial debt onto drivers and operators in an already strained trade extra pressure could lead to anxiety, stress and depression .

Euro 6 emission standard can also be met by vehicles being fitted with permanent adaptations these also need to be considered as a cheaper option to the trade therefor reducing the financial burden across the trade but at the same time lowering our carbon footprint as a trade.

Examples of one of the available adaptations which we have trialled over the last few weeks.

Other adaptations are available but we have trialled an ATMOS- CLEAR EXO 1 and the results of this are enclosed for your consideration we are extremely impressed with the results but the emissions of this vehicle will continue to decline and will make the vehicle cleaner everyday.

Explanation of the results which are included in the next 4 pages

- The technology we are trialling can be used in any vehicle (See attached leaflet and results from our vehicle) .
- The Vehicle we have fitted this equipment to is a 2008 LVD Maxus with a Euro 4 engine.
- 4 tests results are attached (ATMOS EXO :1 fitted 25.11.19)
- Test 1 26.11.19 @ 12.18 emission limit is set at 1.69 which is Euro 4 vehicle plate limit for this vehicle which the vehicle passed at 0.87 pretty clean vehicle to start with.
- Test 2 26.11.19 @12.23 emission limit was set at Euro 6 0.70 standard which it failed reading of 0.85.
- Test 3 27.11.19 @ 11.40 Emission limit was set again at Euro 6 0.70 standard which it failed again reading of 0.78.
- Test 4 09.12.19 @ 11.25 Emission limits was set again at Euro 6 0.70 standard and it passed with flying colours reading 0.63 .
- This technology will continue to bring the vehicles Emissions down and we are looking forward to future results but this is all we have had time to trial up to now so that we could get the information to yourselves.

PLEASE FIND AFTER THE 4 TEST RESULTS THE INFORMATION ON THE TECHNOLOGY WHICH HAS BEEN FITTED TO VEHICLE HX08 XEE



DGA 2500 MOT

**MOT Exhaust Emissions Test Results:
Diesel - Free Acceleration Smoke Test**

Garage Name: NORTHUMBERLAND COUNTY COUNCIL
 Address: EAST VEIW
 STAKEFORD
 CHOPPINGTON
 NORTHUMBERLAND
 NE62 5TR
 VTSN Number: 29718

Date of Test: 26/11/2019

Time of Test: 12:18:13

Vehicle Details

MOT Test Number:
 Vehicle Registration Mark (VRM): HX08XEE
 Vehicle Identification Number (VIN): 224217
 Vehicle Make: LDV
 Vehicle Model: MAXUS
 Engine Size (cc): 2500
 Odometer reading: 102399

Engine temperature: No Engine temperature taken

Test limit applied: 1.69 1/m
 Absorption coefficient: 0.87 1/m ----- 1/min Zero drift: 0.00 1/m
 Absorption coefficient after correction: 0.87 1/m

Test type applied: Fast Pass

Test Result: Pass

Tested by: I ROGERS

Signature:

Remarks:

Software version: 4.7.0.1

TEST 2



DGA 2500 MOT

MOT Exhaust Emissions Test Results:
Diesel - Free Acceleration Smoke Test

Garage Name: NORTHUMBERLAND COUNTY COUNCIL
Address: EAST VEIW
STAKEFORD
CHOPPINGTON
NORTHUMBERLAND
NE62 5TR
VTSN Number: 29718

Date of Test: 26/11/2019 Time of Test: 12:23:49

Vehicle Details

MOT Test Number:
Vehicle Registration Mark (VRM): HX08XEE
Vehicle Identification Number (VIN): 224217
Vehicle Make: LDV
Vehicle Model: MAXUS
Engine Size (cc): 2500
Odometer reading: 102399

Engine temperature: No Engine temperature taken

Test limit applied: 0.70 1/m
Absorption coefficient: 0.73 1/m ---- 1/min 0.88 1/m ---- 1/min
0.74 1/m ---- 1/min 0.86 1/m ---- 1/min
0.80 1/m ---- 1/min 0.86 1/m ---- 1/min
Mean Absorption coefficient: 0.87 1/m Zero drift: 0.02 1/m
Mean Absorption coefficient after correction: 0.85 1/m
Test type applied: Turbo
Test Result: Fail

Tested by: I ROGERS

Signature:

Remarks:
Limits Plate Value illegible

Software version: 4.7.0.1

TEST 3



DGA 2500 MOT

MOT Exhaust Emissions Test Results:
Diesel - Free Acceleration Smoke Test

Garage Name: NORTHUMBERLAND COUNTY COUNCIL
Address: EAST VEIW
STAKEFORD
CHOPPINGTON
NORTHUMBERLAND
NE62 5TR
VTSN Number: 29718

Date of Test: 27/11/2019

Time of Test: 11:40:52

Vehicle Details

MOT Test Number:
Vehicle Registration Mark (VRM): HX08XEE
Vehicle Identification Number (VIN): 224217
Vehicle Make: LDV
Vehicle Model: MAXUS
Engine Size (cc): 2500
Odometer reading: 102399

Engine temperature: No Engine temperature taken

Test limit applied: 0.70 1/m
Absorption coefficient: 0.91 1/m ----- 1/min 0.75 1/m ----- 1/min
0.84 1/m ----- 1/min 0.79 1/m ----- 1/min
0.85 1/m ----- 1/min 0.80 1/m ----- 1/min
Mean Absorption coefficient: 0.78 1/m Zero drift: 0.00 1/m
Mean Absorption coefficient after correction: 0.78 1/m
Test type applied: Turbo
Test Result: Fail

Tested by: I ROGERS

Signature:

Remarks:

Software version: 4.7.0.1

TEST 4



DGA 2500 MOT

**MOT Exhaust Emissions Test Results:
Diesel - Free Acceleration Smoke Test**

Garage Name: NORTHUMBERLAND COUNTY COUNCIL
Address: EAST VEIW
STAKEFORD
CHOPPINGTON
NORTHUMBERLAND
NE62 5TR
VTSN Number: 29718

Date of Test: 09/12/2019

Time of Test: 11:25:39

Vehicle Details

MOT Test Number:
Vehicle Registration Mark (VRM): HX08XEE
Vehicle Identification Number (VIN): 224217
Vehicle Make: LDV
Vehicle Model: MAXUS
Engine Size (cc): 2500
Odometer reading: 103584

Engine temperature: **No Engine temperature taken**

Test limit applied: **0.70** 1/m
Absorption coefficient: 0.75 1/m ----- 1/min 0.65 1/m ----- 1/min
0.67 1/m ----- 1/min
0.67 1/m ----- 1/min
Mean Absorption coefficient: **0.66** 1/m Zero drift: 0.03 1/m
Mean Absorption coefficient after correction: **0.63** 1/m
Test type applied: **Turbo**
Test Result: **Pass**

Tested by: I ROGERS

Signature:

Remarks:
No Limits Plate visible

Software version: 4.7.0.1

ATMOS CLEER

reducing emissions | improving the air we breathe | the future is clear





Introduction

Atmos-Clear Airne last two years have invested in the development and enhancement technology to create a product that when fitted to ANY fossil fuel/ve, be it petrol, diesel or LPG, significantly reduces the production oxions



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Contents

1. Introduction
2. Our Commitment to the Environment
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9. How we use you
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ATMOS-CLEAR

giving you the power to make a positive change.

© Atmos-Clear Systems

On Demand Fuel Additive Systems

As a result of improved efficiency, combustion, and fuel economy, you can expect to see a significant increase in engine life and overall performance.

Changing engine oil regularly is the most important maintenance task for your engine. Regular oil changes are essential for maintaining engine performance.



The Key Benefits

- Dramatically Reduced Emissions
- Maintains Cleanliness of DPFs
- Quick & Easy Installation
- Low Maintenance
- Low Running Costs
- No Moving Parts
- 95% Recyclable
- Easily Transferred Between Vehicles
- Reduces Your Carbon Footprint

ATMOS CLEAR

How it Works

The system is an 'on demand' hydrogen electrolyzer that adds hydrogen to your regular fuel/air mixture. This results in a 5x faster, cooler burn which eliminates almost all waste gases and provides better fuel economy.



The box creates a small amount of very pure, very powerful hydrogen from our special water.



Hydrogen is sucked into the engine through the air intake along with your regular fuel/air mixture.



The resulting Hydrogen-Fuel-Air mixture burns faster and more completely than your ordinary fuel-air mixture.



Nearly all the particulates and polluting gases are burnt off, reducing emissions.

The Combustion Process Why AHydrogen?

Hydrogen is the second lightest element in the periodic table and, is able to migrate into the gaps of other molecules in this case, fuel. Because of this, combusted as it's spread more promptly and cool than would otherwise be possible. When fuel goes into the combustion chamber or cylinder engine, the immediate assumption that it will burn quickly... and it is, but actually the burn necessary to reach the cylinder walls leaving until to be expelled from the cylinder through just, as emissions.

By adding a small amount of the hydrogen produced by the patented technology in Atmos-Clear's units, combustion is even when hydrogen atoms migrate between the fuel cells. This means that nearly all of the fuel is burned with fewer emissions or particulates are expelled into the air because the hydrogen produced isn't oxygen, it's ortho-hydrogen and this is creating the balance of electrolyte, the metals used in it and the current used to create the reaction, just



The Product



The system has been specifically designed to suit large cars and medium size buses and 7.5 tonne lorries engine sizes as follows:

- **EXO:1** (1.0 litre to 3.0 litre) Suitable for cars
- **EXO:2** (3.0 litre and above up to 7.0 litre)
- **EXO:3** (7.0 litre to 16.0 litre)

We can also provide specialist marine systems **EXOMARINE**. Our products can be used in conjunction with petrol, diesel and LPG and in almost every internal combustion engine, from standard transport applications, HGV, PSV, LCV and passenger cars.

There are lots of other applications for our technology, including generators, fork lift trucks, boat engines and many more.

Our development teams are constantly working on improving our existing product range and developing products for markets not yet covered. Future projects include rail and shipping markets, construction and remote generator applications within the military and domestic usage.

- Patents Pending
- Smart cell with built in:
 - Temperature sensing
 - Integrated Electrical connectivity
 - Electronic & software control (patented)

A Guide to Pollutants

Atmos-Clear strives to reduce and in some cases eliminate the following pollutants

Carbon Dioxide A non-toxic gas, which has a negative contribution towards the environment. A global problem which governments around the world are continuously pursuing policies to reduce CO2 emissions.

Carbon Monoxide Produced from an incomplete combustion process of fuel. This gas is hazardous to health, it reduces the ability of blood to carry oxygen, causes headaches, respiratory problems and at high concentrations; death.

Hydrocarbons These are emitted from the exhaust as unburnt fuel and as evaporation from the fuel tank and nozzle at the point of filling up. Hydrocarbons (HCs) and Nitrogen Oxides (NOx) in sunlight which produces photochemical oxidants and low level Ozone, causing breathlessness and increased symptoms in those with asthma.

Low level Ozone NOx emissions are produced in the combustion process. HCs react with NOx in sunlight which produces low level Ozone, cause inflammation to the airways reducing lung function which can trigger asthma and contributes to the formation of Particulate Matter (PM).

Particulate Matter This is partially burnt fuel which is mainly associated with Diesel Engines. The molecules are formed by the reaction to the oxidant gases. PMs are small particles that make their way in to deep tissue causing respiratory and cardiovascular complaints.

PM10 - Just like PMs, Particulate Matter is a partially burnt fuel associated with Diesel Engines. PMs are molecules that are so small they can only be seen under a powerful microscope. The molecules make their way into the body through the skin causing irregularities, nonfatal heart attacks, decreased lung function and increased respiratory symptoms and even premature death in some cases.

Our Syave been proven to reduce these harmful emissions and in some cases remove them completely!
(Vehicles of all ages have been tested both on and off road, with outstanding results)



TestingMarks

- CO2 Measurement
- Particle count
- Exhaust temperature
- Exhaust pressure

How We Fit

ATMOS-CLEAR

1

test emissions

Measure along the exhaust line before the engine test to ensure good engine efficiency and emissions.

2

fit unit

ATMOS-CLEAR is designed to fit the exhaust line of the engine and the exhaust pipe. It is designed to fit the exhaust line of the engine and the exhaust pipe.

3

tune & test

The engine is tuned and tested. The engine is tuned and tested. The engine is tuned and tested. The engine is tuned and tested.

Independent Testimonials

Dear Atmos-Clear

Following the timehydrogen unit, we have covered over a 3000 running hours between 2x 125KW John Deere engines and would like to give some feedback on these units.

Firstly I am Chief Maeeer with over 25 years of experience to date with diesel engines to the highest level, during this we been exposed to many products with high claims be it magnets, additives, electrical devis I was very sceptical from the outset of installation.

On first sight and aftering discussion it was clear it was a well-made and impressive product whilst retaining end 100%.

Both our marine dies were used as the test bench which have been used on fixed loads and data monitored from new.

Upon fitment an inference was seen of hydrocarbon deposits on the surface of the water at over-board dischargingly smoother power delivery.

Calculations were normal operating conditions over a 6 month period and figures shows up to 10% fuel saving are aith no detrimental effects on the engines noted.

We always complete analysis through a laboratory and the carbon deposits had risen after installation then dropped lower values on following samples indicating the internal cleaning process as described.

Testing on board dust full season has shown drastic reduction of carbon deposit on the water and air-borne emissions; particulate matters which is important to the welfare of Guests and crew along with environmentalge reduction.

I am very excited by rogen generating units, there rugged, simple and brilliantly engineered we will continue to openior over the both coming period and my biggest mystery is why to date this technology is embraced by engine manufacturers?

Steven Whiteside
Chief Engineer
Yacht Sibelle



11 | Atmos-Clear



Marine applications

ATMOS  CLEAN

The marine environment is one of the most sensitive and vulnerable ecosystems on the planet. The impact of human activities on the marine environment is significant and growing. The impact of human activities on the marine environment is significant and growing. The impact of human activities on the marine environment is significant and growing.

With the right technology, you can protect the marine environment from the harmful effects of human activities. With the right technology, you can protect the marine environment from the harmful effects of human activities.

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F.A.Q.'s

How does the system work?
The system works by using a combination of sensors and software to monitor water quality. The system works by using a combination of sensors and software to monitor water quality.

What are the benefits of the system?
The system provides real-time monitoring of water quality, allowing for early detection of problems. The system provides real-time monitoring of water quality, allowing for early detection of problems.

How is the system installed?
The system is installed by a professional installer. The system is installed by a professional installer.

What are the maintenance requirements?
The system requires minimal maintenance. The system requires minimal maintenance.

How long does the system last?
The system has a long lifespan. The system has a long lifespan.

What are the costs of the system?
The system is a cost-effective solution. The system is a cost-effective solution.

How do I contact your sales team?
You can contact our sales team at 1-800-123-4567. You can contact our sales team at 1-800-123-4567.

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ATMOS  CLEAN

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Farmingdale, NY 11735
Tel: 516-241-1111
www.atmosclean.com

Warrants

Having a driver's license suspended or your vehicle with a lien application that vehicle manufacturer's warranty, unless a defect occurs and it can be proved as a direct result of a modification. This is the same for anything you install. Be it bumpers, aftermarket products or add-on body or brake changes, etc.

To open your window of mind Atmos-Clear systems have been patented across the world in many thousands of vehicle applications and related for millions of miles in various jurisdictions including Australia, Japan, Korea, China, the Phillipines, South Africa, the United Kingdom, India, Indonesia, Malaysia, Singapore, Thailand, Vietnam, Cambodia, Laos, Myanmar, Brunei, and the United States. Atmos-Clear products are designed to allow front and rear wheel drive, engine, drive shafts and a wide range of other vehicle systems to be used in the same way as the original equipment manufacturer's design.

In order to protect your investment Atmos-Clear systems have been patented across the world in many thousands of vehicle applications and related for millions of miles in various jurisdictions including Australia, Japan, Korea, China, the Phillipines, South Africa, the United Kingdom, India, Indonesia, Malaysia, Singapore, Thailand, Vietnam, Cambodia, Laos, Myanmar, Brunei, and the United States. Atmos-Clear products are designed to allow front and rear wheel drive, engine, drive shafts and a wide range of other vehicle systems to be used in the same way as the original equipment manufacturer's design.

Insurances

Atmos-Clear Limited is covered for design, manufacturing, installation, public and employee liability and third party following insurance policies:

Employers liability £25,000,000
Public liability £25,000,000
Product liability £5,000,000
Professional indemnity £1,000,000
Directors & Officers liability £500,000

ATMOS CLEAR



ATMOS CLEAR



reducing emissions | improving the air we breathe



Atlanta, GA | 404.525.1111 | www.atmos-clear.com

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ATMOS CLEAR

Reducing Emissions
improving the air we breathe

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On Demand Fuel Additive Systems

Atmos-Clear Limited have invested in the development and enhancement of HHO technology to create a product that when fitted to ANY fossil fuelled engine, be it petrol, diesel or LPG, significantly reduces the production of all emissions.

As a result of creating a more efficient combustion cycle, fuel is burnt more completely, creating an increase in engine efficiency and greater MPG.

Cleaner engine emissions put less stress on a vehicle's diesel particulate filter (DPF) resulting in reduced maintenance and downtime.

- Dramatically Reduced Emissions
- Maintains Cleanliness of DPFs
- Quick & Easy Installation
- Low Maintenance
- Low Running Costs
- No Moving Parts
- 95% Recyclable
- Easily Transferred Between Vehicles
- Reduces Your Carbon Footprint

Our products can be used in conjunction with petrol, diesel and LPG and in almost every internal combustion engine, from standard transport applications, HGV, PSV, LCV and passenger cars.

There are lots of other applications for our technology, including generators, fork lift trucks, boat engines and many more.



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EXO:1

1.0 Litre to 3.0 Litre Engines - Suitable for Cars

EXO:2

3.0 Litre and Above up to 7.0 Litre

EXO:3

7.0 Litre to 16.0 Litre

EXO:MARINE

We Also Provide Specialist Marine Systems

Testing & Results

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Resume de projet / project summary	
Installateur autorisé / authorised installer	CAR DESIGN
Adresse / address	Ozoir-la-Ferriere (77), France
Date d'installation / field installation date	15/09/2018
Vehicule / vehicle	2007 Mercedes Class B 1.5L diesel 110hp

Qualitative feedback

After the installation, the exhaust gases became much less irritant, which was immediately noted by the garage personnel.

After driving approximately 400 km, the car owner reported significant improvement in the car driving characteristics (less engine noise, smoother running, more agile acceleration) as well as some 30% improvement in fuel economy.

Special notes

The device was installed in the "fixed gas production rate" and was not connected to the MAF sensor. The device current was initially set at 2 Amps.

The driver experimented with the current settings of 2.5 Amps, then 3 Amps, and found that increasing the gas output from 2 to 3 Amps negatively affects fuel economy. Finally the current was fixed at 2 Amps which corresponds to the optimal fuel economy.





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Resume de projet / project summary	
Installateur autorisé / authorised installer	CAR DLSIGN STYLING
Adresse / address	Ozoir-la-Ferriere (77), France
Date d'installation / field installation date	12/12/2018
Vehicule / vehicle	2014 Renault Espace 2.0L dCi diesel 110hp

'Avant' / 'Before'



'Après' / 'After'



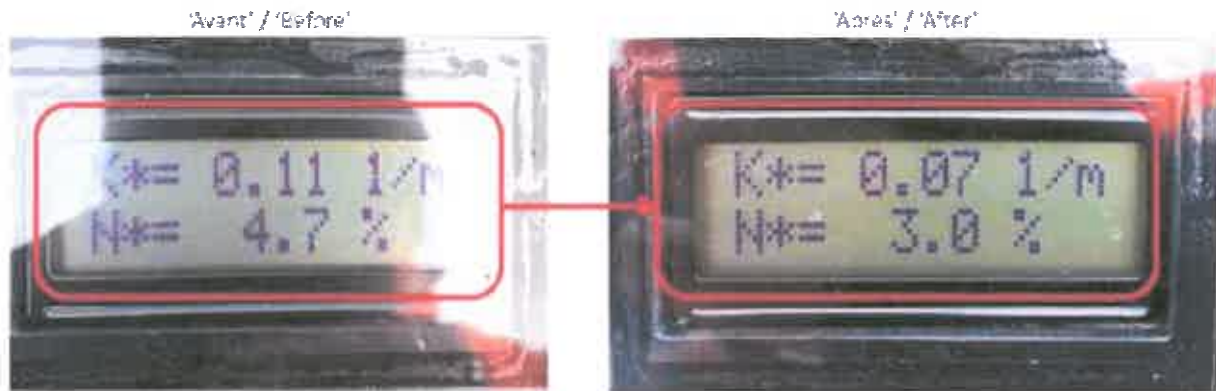
Réduction de 98% des émissions
98% emissions reduction



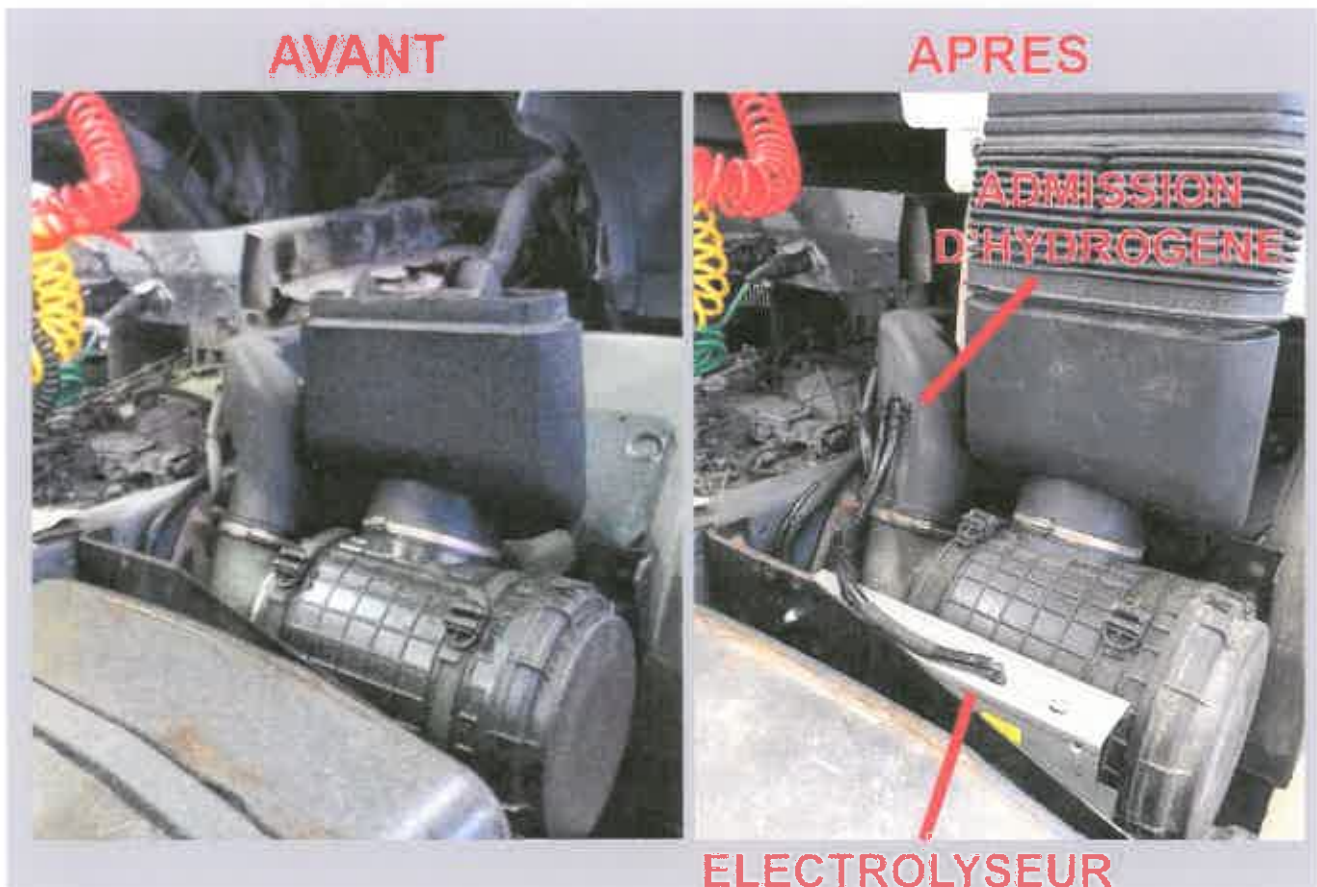
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Resume de projet / project summary	
Client	JAULIN
Installateur autorisé / authorised installer	CAR DESIGN STYLING
Date d'installation / field installation date	25/01/2019
Vehicule / vehicle	2002 Renault 6.8L diesel 530 000 km

Essai d'émissions standard immédiatement après l'installation d'un appareil « hydrogen-boost »
(valeur moyenne de 4 accélérations au régime maximal)

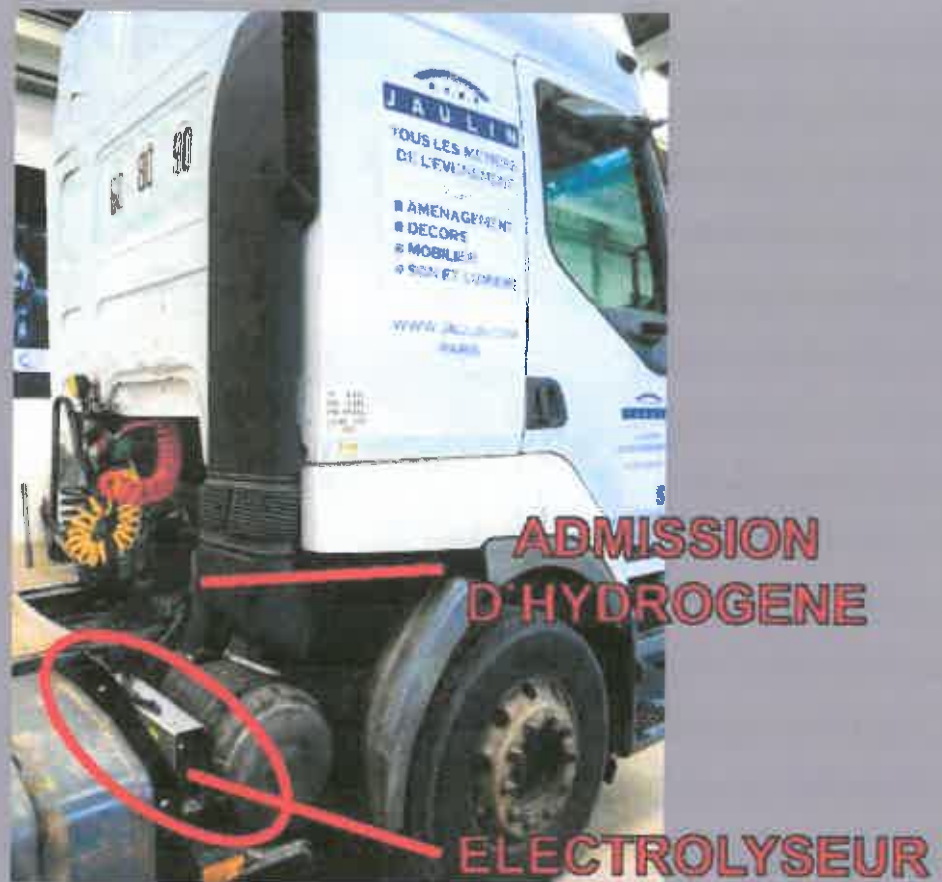


Réduction de 36% des émissions
36% emissions reduction



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OPACITÉ AU RALENTI STABILISÉ À $0,01 \text{ M}^{-1}$



Video : https://youtu.be/K5fs5h_qD8c



Évaluations qualitatives / Qualitative feedback

Après l'installation, les gaz d'échappement sont devenus beaucoup moins irritants, ce qui a été immédiatement noté par le personnel du garage.

Immédiatement après l'installation, le véhicule a été pris pour un court essai d'environ 15-20 minutes. Le conducteur a commenté l'amélioration de la dynamique de conduite et la réduction du bruit du moteur.

Le prochain entretien avec le conducteur du véhicule est planifié après que le véhicule a parcouru au moins 200 km afin de recueillir tout commentaire qualitatif supplémentaire.

After the installation, the exhaust gases became much less irritant, which was immediately noted by the garage personnel.

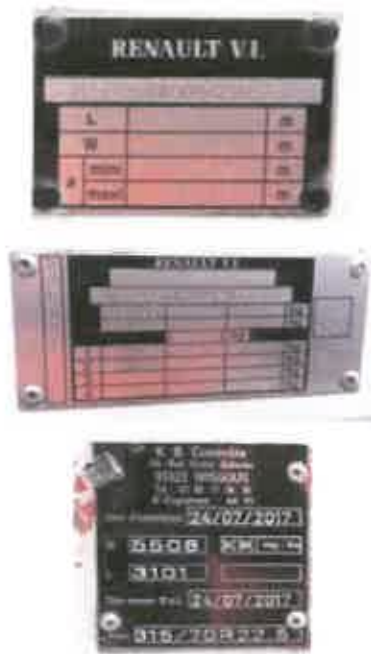
Immediately after the installation, the vehicle was taken for a short test-drive of approximately 15-20 minutes. The driver commented on improved driving dynamics and reduced engine noise.

The next interview of the driver of the vehicle is planned after the vehicle has driven at least 200 km, to gather any additional qualitative feedback and impressions.

Notes particulières / Special notes

L'appareil a été installé au «taux de production de gaz fixe». Le courant de l'appareil a été défini à 6,8 ampères (2 x 3,4 ampères).

The device was installed in the "fixed gas production rate" mode. The device current was set at 6.8 Amps (2 x 3.4 Amps).



Resume de projet / project summary	
Client	LOXAM POWER
Installateur autorisé / authorised installer	CAR DESIGN STYLING
Date d'installation / field installation date	01/02/2019
Équipement / equipment	Groupe électrogène Perkins 4400cc 48kW 5400h

Test d'opacité des émissions au ralenti à 1500 tr/min 30 minutes après l'installation

'Avant' / 'Before'

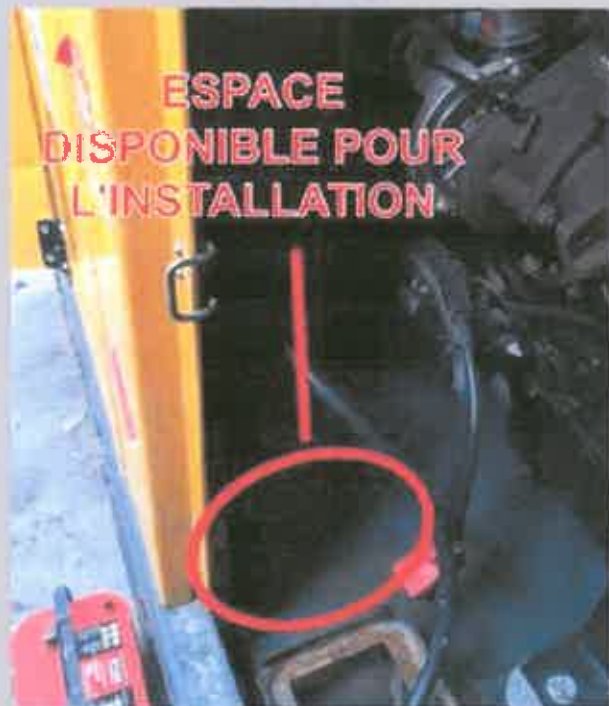


'Après' / 'After'



Réduction de 89% des émissions
89% emissions reduction

AVANT



APRES

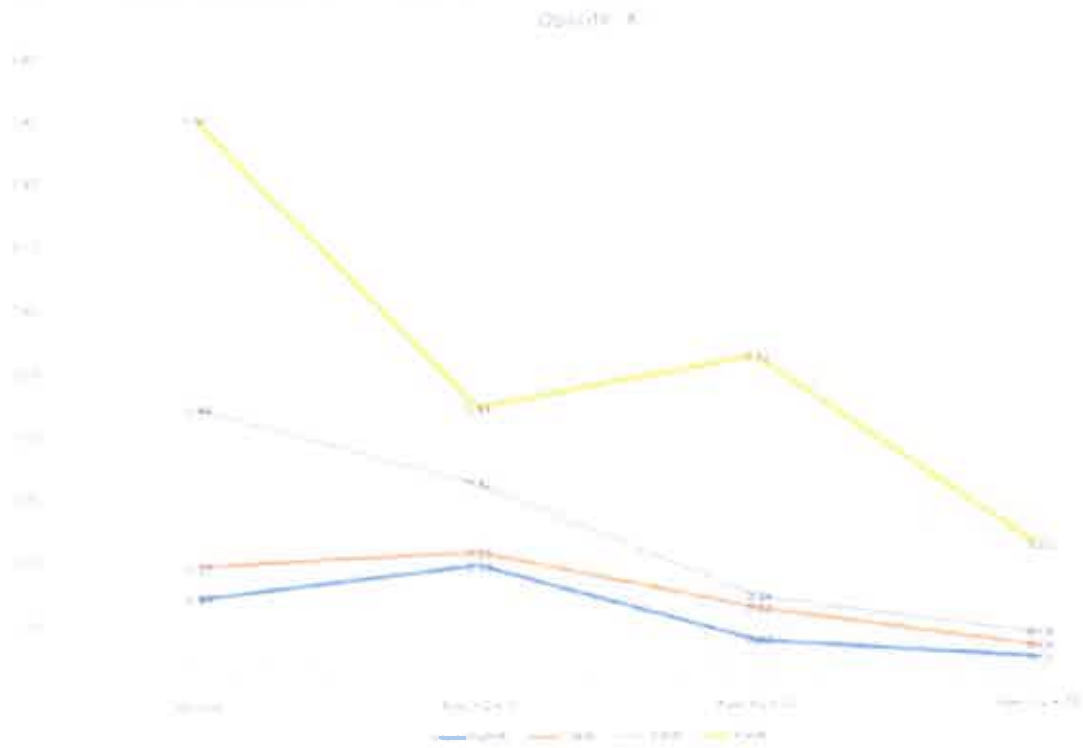


ELECTROLYSEUR

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DYNAMIQUE DES EMISSIONS SOUS CHANGEMENT DE CHARGE



Évaluations qualitatives / Qualitative feedback	
Après l'installation, les gaz d'échappement sont devenus beaucoup moins irritants, ce qui a été immédiatement noté par le personnel du garage.	After the installation, the exhaust gases became much less irritant, which was immediately noted by the garage personnel.
Les mesures des émissions ont été prises en 4 points: <ul style="list-style-type: none"> • Ralenti (0% de charge) • 15 kW (31% de charge) • 30 kW (62% de charge) • 45 kW (93% de charge) 	The emissions measurement were taken at 4 points: <ul style="list-style-type: none"> • Idle (0% load) • 15 kW (31% load) • 30 kW (62% load) • 45 kW (93% load)
Les mesures ont été prises à 4 intervalles de temps: <ul style="list-style-type: none"> • Sans hydrogène • Avec de l'hydrogène, immédiatement après l'installation • 10 minutes après l'installation • 20 minutes après l'installation 	The measurements were taken at 4 time intervals: <ul style="list-style-type: none"> • Without hydrogen • With hydrogen, immediately after installation • 10 minutes after installation • 20 minutes after installation
Après environ 30 minutes de fonctionnement, le niveau des émissions au ralenti s'est stabilisé à $K=0,02 \text{ m}^{-1}$	After some 30 minutes of operation, the level of emissions at idle stabilised at $K=0.02 \text{ m}^{-1}$

Notes particulières / Special notes	
L'appareil a été installé au «taux de production de gaz fixe». Le courant de l'appareil a été défini à 6 amperes (2 x 3 amperes).	The device was installed in the "fixed gas production rate" mode. The device current was set at 6 Amps (2 x 3 Amps).
Next set of emissions measurements should be taken after 100-200 hours of genset operation.	La prochaine série de mesures d'émissions devrait être prise après 100 à 200 heures de fonctionnement du groupe électrogène.

Resume du projet -- project summary	
Reference projet -- project reference	2019041501
Client	LOXAM
Installateur autorisé -- authorised installer	CAR DESIGN STYLING
Date d'installation -- installation date	29/05/2019
Équipement -- equipment	Moteur: Kubota 18,2 kW / 1,1 L
Application	NAC IIII

AVANT




APRES



Réduction de 95% d'opacité
95% opacity reduction



EMISSION CONTROL INFORMATION
THIS ENGINE MEETS 2010 TIER 4 EMISSION REGULATIONS FOR U.S. EPA AND CALIFORNIA NONROAD CI ENGINES.
Kubota KUBOTA Corporation
MODEL: D1105-ET03 ENGINE DISPL: 1.1 L
FAMILY: JKBKLD1.58C9 ECI SEM 1P1
POWER: 18.2kW/2500rpm CATEGORY: 0-10kW
VALVE CLEARANCE (IOD) / IN. & 165mm EA. & 165mm
INJ. TIMING: 18 DEG BTDC
ULTRA LOW SULFUR DIESEL FUEL ONLY
CONTACT: KUBOTA FOR FUEL SETTINGS

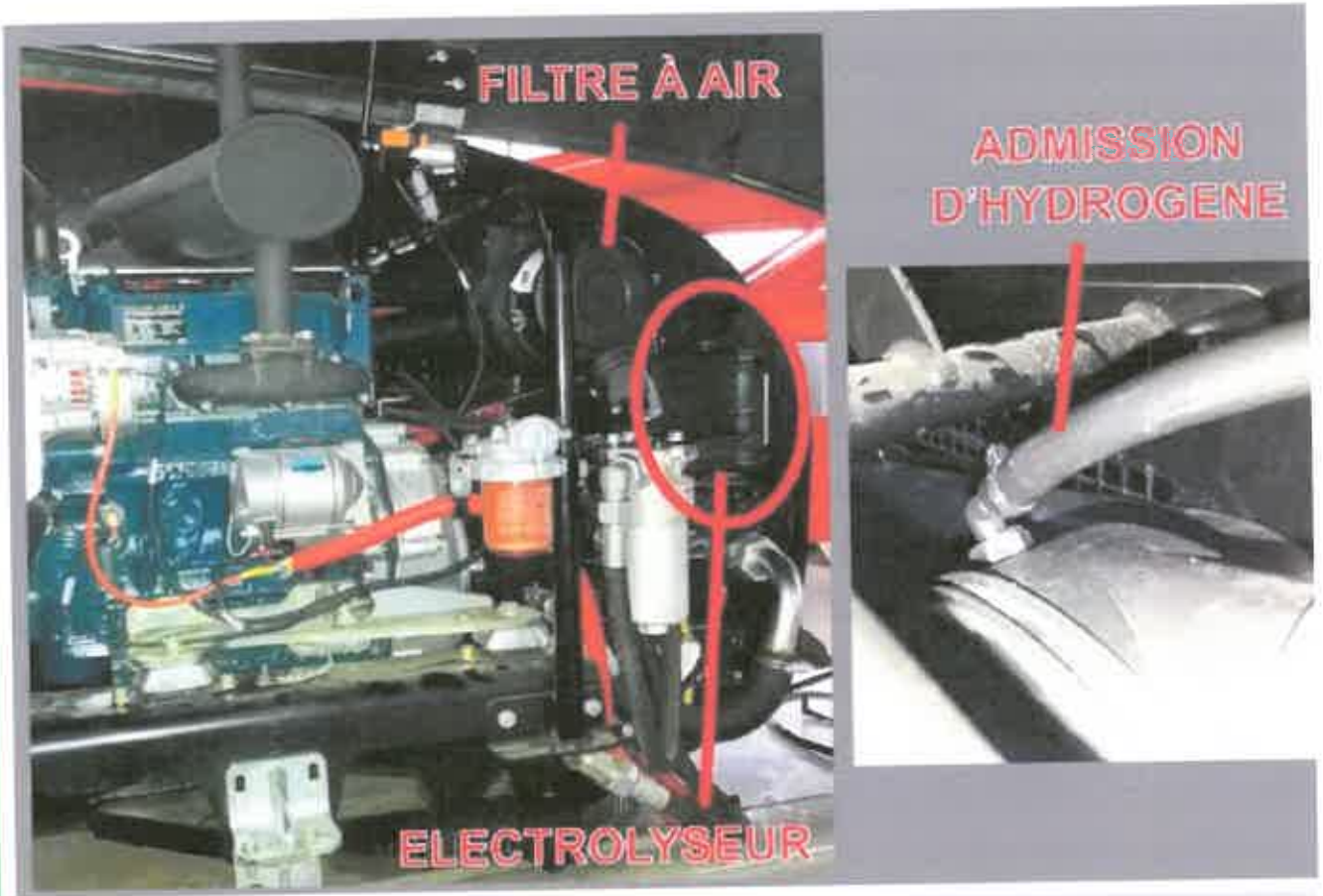


Vehicle Reg	Nacelle LOX
Vehicle Type	SPICER
Vehicle Mileage	
Battery voltage	14.3V
MAP position	15.5
Cell Voltage	3.4 V
Cell Current	2.2 A
Cell Temp	33 °C
System Temp	34 °C
Water level	OK
Learn Mode	Off
Fob Pair Mode	Off
Engine Running	Rot HiW
Error	

Vehicle Reg	Nacelle LOX
Vehicle Type	SPICER
Vehicle Mileage	
Battery Mode	Standard
Battery Trigger	11.5
MAP Mode	Display
MAP Invert	Off
MAP Min	15.5
MAP Max	16.5
Cell Current Min	1.5
Cell Current Max	2.5
Fob Mode	LOXAM
Learn Mode	Off
Fob Pair Mode	Off
Disable LED's	Off



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83% Reproduction

ATMOS CLEAR



DGA 2500 MOT

**MOT Exhaust Emissions Test Results:
Diesel - Free Acceleration Smoke Test**

Garage Name: ATMOS-CLEAR LTD
Address: EXETER
DEVON

VTSN Number

Date of Test: 19/09/2017

Time of Test 17.18.31

Vehicle Details

MOT Test Number:
Vehicle Registration Mark (VRM): GF60XMK
Vehicle Identification Number (VIN):
Vehicle Make: VOLVO
Vehicle Model: FL260
Engine Size (cc): 7116
Odometer reading: 139875

Engine temperature: No Engine temperature taken

Test limit applied: 1.50 l/m

Absorption coefficient: 0.30 l/m ----- 1/min Zero drift: 0.00 l/m

Absorption coefficient after correction: 0.30 l/m

Test type applied: Fast Pass


Test Result: Pass


Tested by: NO HYDROGEN

Signature:

Remarks

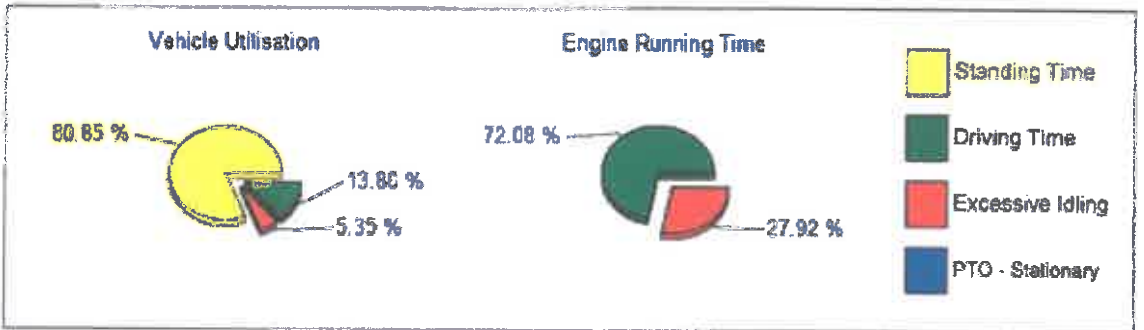
Software version: 4.0.0.0

Selected Group:		Start Date/Time	End Date/Time	Duration
Canning Euro 		20/09/2017 00:00:00	02/10/2017 23:59:59	13 Days
123 Performance Report v1.6				
Fuel Consumption	4.43 MPG	-	-	Excludes Excessive Idling and Stationary PTO Calculation based on IPCC guidelines
Rolling Fuel Consumption	4.95 MPG	-	-	
Total Fuel Used	323.50 Litre(s)	-	-	
Excessive Idling-Fuel Used	34.00 Litre(s)	-	-	
PTO-Stationary-Fuel Used	0.00 Litre(s)	-	-	
Carbon Emissions	1897.13 lbs	-	-	
Average Axle Load	0.00 lbs	-	-	
Peak Axle Load	0.00 lbs	-	-	
Peak Axle Load Location	0.00	-	-	


Selected Group: Canning Euro 123 Performance Report v1.6		01/09/2017 00:00:00 19/09/2017 23:59:59	19 Days
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Vehicle: GF60XMK Profile: Euro Driver: Unknown

Parameter	Value	Duration	Notes
Vehicle Utilisation	19.15 %	87:18:34	As a % of Analysis Period
Driving Time	72.08 %	52:55:57	Engine on time minus excessive idling and Stationary PTO
Excessive Idling	27.92 %	24:22:37	As a % of Vehicle Utilisation
PTO - Stationary	0.00 %	00:00:00	As a % of Vehicle Utilisation
PTO - Moving	0.00 %	00:00:00	As a % of Driving Time
Standing Time	80.85 %	368:41:25	Engine off time during analysis period (As a % of Analysis Period)



Parameter	Value	Duration	Notes
Throttle at > 95%	0.26 %	00:09:58	As a % of Driving Time
Green Band Driving	47.56 %	29:55:51	As a % of Driving Time
Cruise Control	0.00 %	00:00:00	As a % of Driving Time
Time in Dx Mode	0.00 %	00:00:00	As a % of Engine Run Time
Coasting	0.00 %	00:00:00	Moving with no accelerator and no brake and no cruise control engaged in or out of gear.
Speeding Incidents	0.00 per hour	-	No. of instances perhour of driving time
Over Revving Incidents	0.00 per hour	-	See Gear Report for details
Harsh Braking Incidents	0.00 per hour	-	No. of instances per hour of driving time
Exhaust Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Service Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Gear Engagements	176.44 per hour	-	Per hour of Driving Time
Average Engine Torque	27.66 %	-	As a % of Engine Reference Torque
Average Speed	6.50 MPH	-	
Maximum Speed	54.08 MPH	-	
Odometer Reading Start	86310.80 Mile(s)	-	Earliest odometer reading for the period
Odometer Reading End	86914.50 Mile(s)	-	Latest odometer reading for the period
Odometer Distance	408.80 Mile(s)	-	Distance traveled by this resource between the start and end odometer readings

Selected Group:		Reporting Period:		Reporting Period:	
Canning Euro 		01/09/2017 00:00:00		19 Days	
123 Performance Report v1.6		19/09/2017 23:59:59			
Fuel Consumption	4.25 MPG	-	-	Excludes Excessive Idling and Stationary PTO Calculation based on IPCC guidelines	
Rolling Fuel Consumption	4.91 MPG	-	-		
Total Fuel Used	437.50 Litre(s)	-	-		
Excessive Idling-Fuel Used	59.00 Litre(s)	-	-		
PTO-Stationary-Fuel Used	0.00 Litre(s)	-	-		
Carbon Emissions	2565.67 lbs	-	-		
Average Axle Load	0.00 lbs	-	-		
Peak Axle Load	0.00 lbs	-	-		
Peak Axle Load Location	0.00	-	-		

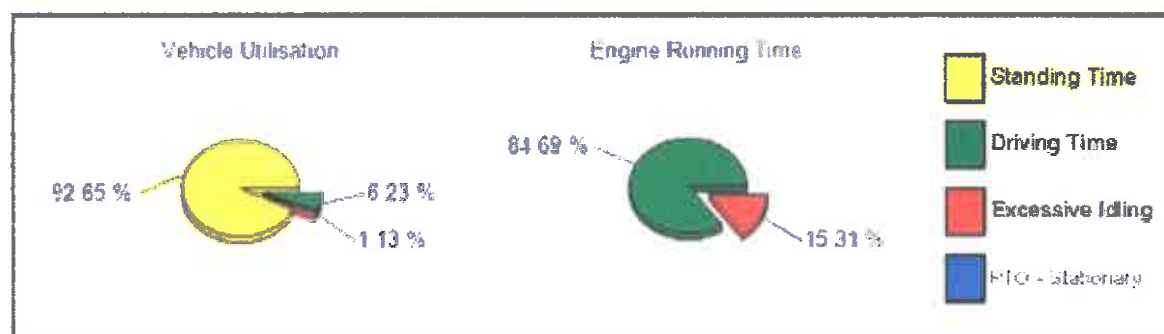
Selected Group: Canning Dustcart 123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 55 Days
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Vehicle: GK11NTA

Profile: Euro

Driver: Unknown

Parameter	Value	Duration	Notes
Vehicle Utilisation	7.35 %	97:05:05	As a % of Analysis Period
Driving Time	84.69 %	92:13:07	Engine on time minus excessive idling and Stationary PTO
Excessive Idling	16.31 %	14:51:58	As a % of Vehicle Utilisation
PTO - Stationary	0.00 %	00:00:00	As a % of Vehicle Utilisation
PTO - Moving	0.00 %	00:00:00	As a % of Driving Time
Standing Time	92.65 %	1222:54:54	Engine off time during analysis period (As a % of Analysis Period)



Parameter	Value	Duration	Notes
Throttle at > 95%	3.40 %	02:47:50	As a % of Driving Time
Green Band Driving	56.68 %	46:36:14	As a % of Driving Time
Cruise Control	0.00 %	00:00:00	As a % of Driving Time
Time in D+ Mode	0.00 %	00:00:00	As a % of Driving Time
Coasting	0.00 %	00:00:00	Moving with no accelerator and no brake and no cruise control engaged in or out of gear
Speeding Incidents	0.00 per hour	-	No. of instances per hour of driving time
Over Revving Incidents	0.00 per hour	-	See Gear Report for details
Harsh Braking Incidents	0.00 per hour	-	No. of instances per hour of driving time
Exhaust Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Service Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Gear Engagements	216.42 per hour	-	Per hour of Driving Time
Average Engine Torque	30.50 %	-	As a % of Engine Reference Torque
Average Speed	10.52 MPH	-	
Maximum Speed	55.92 MPH	-	
Odometer Reading Start	135273.50 Mile(s)	-	Earliest odometer reading for the period
Odometer Reading End	140190.90 Mile(s)	-	Latest odometer reading for the period
Odometer Distance	885.00 Mile(s)	-	Distance travelled by this resource between the start and end odometer readings

13/11/2017 17:03:11


123 Performance Report


Page 1 of 6

v1.6

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Selected Group: Canning Dustcart  123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59		Analysis Duration 55 Days	
Fuel Consumption	5.15 MPG	-	Includes Excessive Idling and Stationary IDCC Calculation based on IFCC guidelines		
Rolling Fuel Consumption	5.38 MPG	-			
Total Fuel Used	763.00 Litre(s)	-			
Excessive Idling-Fuel Used	32.50 Litre(s)	-			
PTO-Stationary-Fuel Used	0.00 Litre(s)	-			
Carbon Emissions	4474.62 lbs	-			
Average Axle Load	0.00 lbs	-			
Peak Axle Load	0.00 lbs	-			
Peak Axle Load Location	0.00	-			

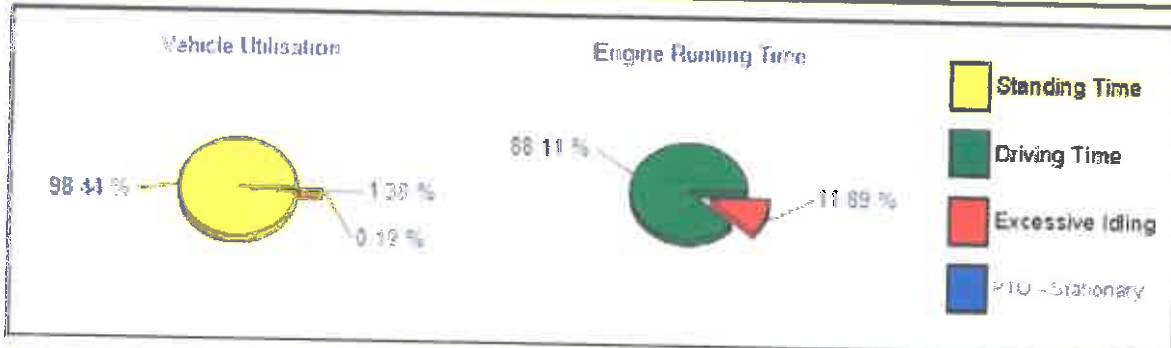
Selected Group: Canning Dustcart 123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 55 Days
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Vehicle: GK11NTA

Profile: Euro


Driver: DARYL SOLE


Parameter	Value	Duration	Notes
Vehicle Utilisation	1.58 %	20:38:57	As a % of Analysis Period
Driving Time	88.11 %	18:11:42	Engine on time minus excessive idling and stationary PTO
Excessive Idling	11.89 %	02:27:15	As a % of Vehicle Utilisation
PTO - Stationary	0.00 %	00:00:00	As a % of Vehicle Utilisation
PTO - Moving	0.00 %	00:00:00	As a % of Driving Time
Standing Time	98.44 %	1299:21:02	Engine off time during analysis period (As a % of Analysis Period)



Parameter	Value	Duration	Notes
Throttle at > 95%	4.09 %	00:44:40	As a % of Driving Time
Green Band Driving	54.78 %	09:58:05	As a % of Driving Time
Cruise Control	0.32 %	00:03:32	As a % of Driving Time
Time in Dx Mode	0.00 %	00:00:00	As a % of Engine Run Time
Coasting	0.00 %	00:00:00	Moving with full accelerator and no brake used, no cruise control engaged in or out of gear
Speeding Incidents	0.00 per hour	-	Per 100 instances per hour of driving time
Over Revving Incidents	0.00 per hour	-	See Error Report for details
Harsh Braking Incidents	0.05 per hour	-	No. of instances per hour of driving time
Exhaust Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Service Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Gear Engagements	245.89 per hour	-	Per hour of Driving Time
Average Engine Torque	32.13 %	-	As a % of Engine Reference Torque
Average Speed	12.56 MPH	-	
Maximum Speed	55.92 MPH	-	
Odometer Reading Start	135108.40 Mile(s)	-	Earliest odometer reading for the period
Odometer Reading End	138831.30 Mile(s)	-	Latest odometer reading for the period
Odometer Distance	228.50 Mile(s)	-	Distance travelled by this resource between the start and end odometer readings

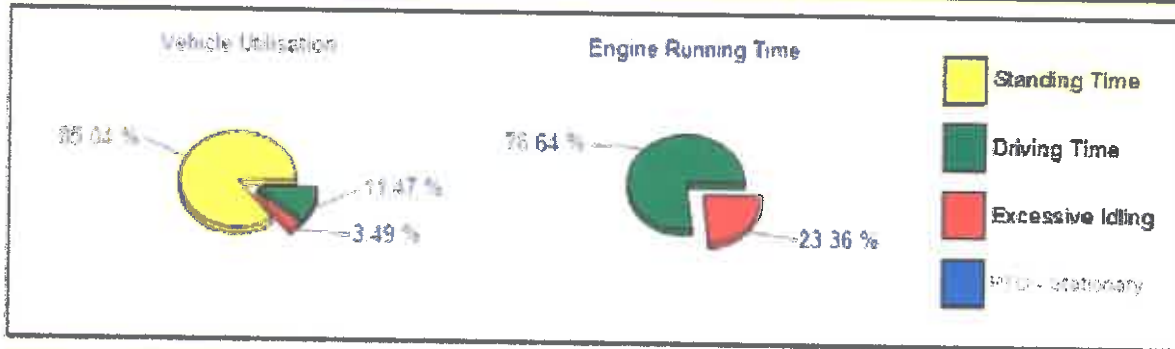
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Selected Group: Canning Dustcart  123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59		Analysis Duration 55 Days
Fuel Consumption	5.36 MPG	-	Excludes Excessive Idling and Stationary PTO Calculated based on IFCO guidelines	
Rolling Fuel Consumption	5.50 MPG	-		
Total Fuel Used	194.00 Litre(s)	-		
Excessive Idling-Fuel Used	5.00 Litre(s)	-		
PTO-Stationary-Fuel Used	0.00 Litre(s)	-		
Carbon Emissions	1137.68 lbs	-		
Average Axle Load	0.00 lbs	-		
Peak Axle Load	0.00 lbs	-		
Peak Axle Load Location	0.00	-		


Selected Group: Canning Dustcart 123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 56 Days
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Vehicle: GK11NTA Profile: Euro Driver: TITUS THEODORE

Parameter	Value	Duration	Notes
Vehicle Utilisation	14.96 %	197:28:10	As a % of Analysis Period
Driving Time	76.64 %	161:20:44	Engine on time minus excessive idling and Stationary PTO
Excessive Idling	23.36 %	46:07:26	As a % of vehicle Utilisation
PTO - Stationary	0.00 %	00:00:00	As a % of vehicle Utilisation
PTO - Moving	0.00 %	00:00:00	As a % of Driving Time
Standing Time	95.04 %	1122:31:49	Engine off time during analysis period (As a % of Analysis Period)

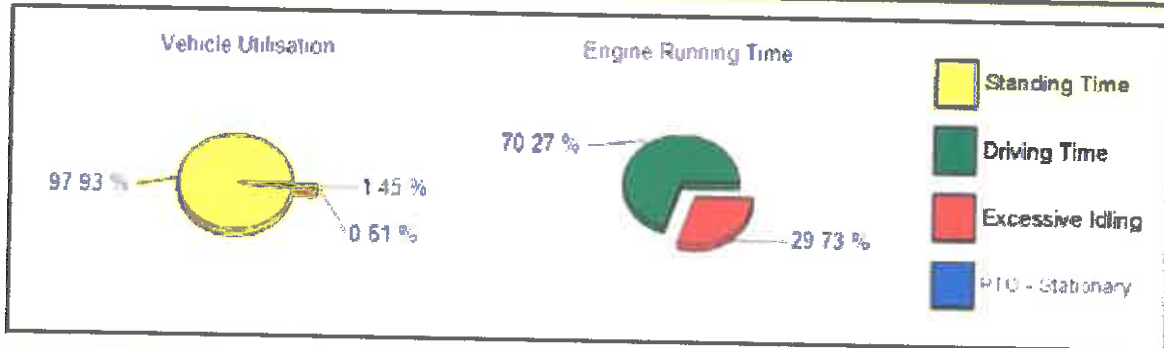


Parameter	Value	Duration	Notes
Throttle at > 95%	2.06 %	03:06:40	As a % of Driving Time
Green Band Driving	56.76 %	95:54:02	As a % of Driving Time
Cruise Control	0.97 %	01:28:18	As a % of Driving Time
Time in Dx Mode	0.00 %	00:00:00	As a % of Engine Run Time
Coasting	0.00 %	00:00:00	Moving with no acceleration and no brake and no cruise control engaged in the 1st gear
Speeding Incidents	0.00 per hour	-	No. of incidents per hour of driving time
Over Revving Incidents	0.00 per hour	-	See Gear Request for details
Harsh Braking Incidents	0.00 per hour	-	No. of instances per hour of driving time
Exhaust Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Service Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Gear Engagements	258.79 per hour	-	Per hour of Driving Time
Average Engine Torque	30.88 %	-	As a % of Engine Reference Torque
Average Speed	10.83 MPH	-	
Maximum Speed	56.54 MPH	-	
Odometer Reading Start	134920.50 Mile(s)	-	Earliest odometer reading for the period
Odometer Reading End	140748.50 Mile(s)	-	Latest odometer reading for the period
Odometer Distance	1638.80 Mile(s)	-	Distance travelled by the vehicle between the start and end of the analysis period


Selected Group: Canning Dustcart 123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 55 Days
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Vehicle: GK11NTA Profile: Euro Driver: DB071171621322

Parameter	Value	Duration	Notes
Vehicle Utilisation	2.07 %	27:18:22	As a % of Analysis Period
Driving Time	70.27 %	19:11:21	Engine on time minus excessive idling and stationary PTO
Excessive Idling	29.73 %	08:07:01	As a % of Vehicle Utilisation
PTO - Stationary	0.00 %	00:00:00	As a % of Vehicle Utilisation
PTO - Moving	0.00 %	00:00:00	As a % of Driving Time
Standing Time	97.93 %	1292:41:37	Engine off time during analysis period (As a % of Analysis Period)



Parameter	Value	Duration	Notes
Throttle at > 95%	11.70 %	02:14:43	As a % of Driving Time
Green Band Driving	57.60 %	11:03:13	As a % of Driving Time
Cruise Control	0.00 %	00:00:00	As a % of Driving Time
Time in Dx Mode	0.00 %	00:00:00	As a % of Driving Time
Coasting	0.00 %	00:00:00	Moving with no accelerator and no brake and no cruise control engaged in or out of gear
Speeding Incidents	0.00 per hour	-	No. of instances per hour of driving time
Over Revving Incidents	0.00 per hour	-	See Gear Report for details
Harsh Braking Incidents	0.10 per hour	-	No. of instances per hour of driving time
Exhaust Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Service Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Gear Engagements	243.47 per hour	-	Per hour of Driving Time
Average Engine Torque	31.75 %	-	As a % of Engine Maximum Torque
Average Speed	12.86 MPH	-	
Maximum Speed	59.65 MPH	-	
Odometer Reading Start	137130.40 Mile(s)	-	Earliest odometer reading for the period
Odometer Reading End	139206.50 Mile(s)	-	Latest odometer reading for the period
Odometer Distance	246.81 Mile(s)	-	Distance travelled by this resource between the start and end odometer readings

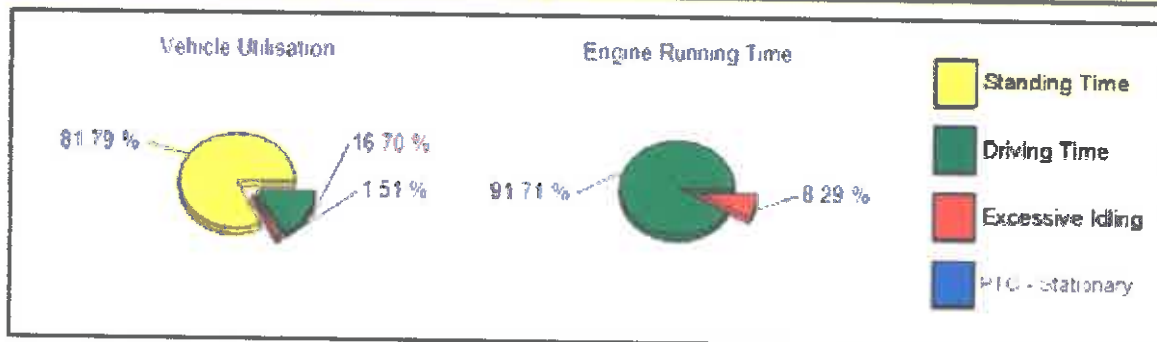
Selected Group: Canning Dustcart  123 Performance Report v1.6	Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 55 Days
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Vehicle: GK11NTA

Profile: Euro

Driver: MARK BRETT


Parameter	Value	Duration	Notes
Vehicle Utilisation	18.21 %	240:26:11	As a % of Analysis Period
Driving Time	91.71 %	220:29:54	Engine on time minus excessive idling and stationary PTO
Excessive Idling	8.29 %	18:56:17	As a % of Vehicle Utilisation
PTO - Stationary	0.00 %	00:00:00	As a % of Vehicle Utilisation
PTO - Moving	0.00 %	00:00:00	As a % of Driving Time
Standing Time	81.79 %	1079:33:48	Engine off time during analysis period (As a % of Analysis Period)




Parameter	Value	Duration	Notes
Throttle at > 85%	2.53 %	05:34:35	As a % of Driving Time
Green Band Driving	67.93 %	127:43:36	As a % of Driving Time
Cruise Control	0.00 %	00:00:00	As a % of Driving Time
Time in Dx Mode	0.00 %	00:00:00	As a % of Engine Run Time
Coasting	0.00 %	00:00:00	Moving with foot at accelerator and no brake, and no cruise control engaged in or out of gear
Speeding Incidents	0.00 per hour	-	No. of instances per hour of driving time
Over Revving Incidents	0.00 per hour	-	See Gear Report for details
Harsh Braking Incidents	0.13 per hour	-	No. of instances per hour of driving time
Exhaust Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Service Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Gear Engagements	297.46 per hour	-	Per hour of Driving Time
Average Engine Torque	33.77 %	-	As a % of Engine Reference Torque
Average Speed	12.60 MPH	-	
Maximum Speed	56.54 MPH	-	
Odometer Reading Start	134920.50 Mile(s)	-	Earliest odometer reading for the period
Odometer Reading End	140677.90 Mile(s)	-	Latest odometer reading for the period
Odometer Distance	2777.60 Mile(s)	-	Distance travelled by this resource between the start and end odometer readings

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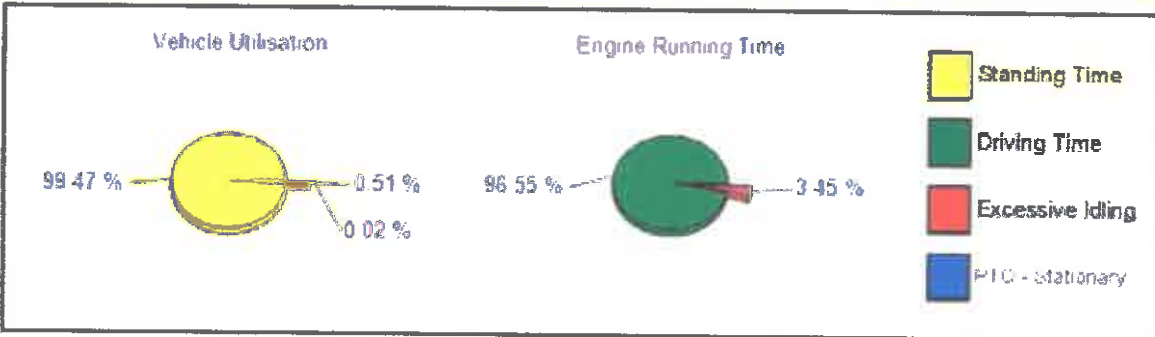
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Selected Group: Canning Dustcart  123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59		Analysis Duration 55 Days	
Fuel Consumption	5.32 MPG	-	-	Excludes Excessive Idling and Stationary PTO Calculation based on UKVI guidelines	
Rolling Fuel Consumption	5.41 MPG	-	-		
Total Fuel Used	2374.00 Litre(s)	-	-		
Excessive Idling-Fuel Used	40.60 Litre(s)	-	-		
PTO-Stationary-Fuel Used	0.00 Litre(s)	-	-		
Carbon Emissions	13922.03 lbs	-	-		
Average Axle Load	0.00 lbs	-	-		
Peak Axle Load	0.00 lbs	-	-		
Peak Axle Load Location	0.00	-	-		


Selected Group: Canning Dustcart 123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 55 Days
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Vehicle: GK11NTA Profile: Euro Driver: Arlin Rudnic

Parameter	Value	Duration	Notes
Vehicle Utilisation	0.63 %	06:59:06	As a % of Analysis Period
Driving Time	96.55 %	06:44:38	Engine on time minus excessive idling and stationary PTO
Excessive Idling	3.45 %	00:14:27	As a % of Vehicle Utilisation
PTO - Stationary	0.00 %	00:00:00	As a % of Vehicle Utilisation
PTO - Moving	0.00 %	00:00:00	As a % of Driving Time
Standing Time	99.47 %	1313:00:54	Engine off time during analysis period (As a % of Analysis Period)



Parameter	Value	Duration	Notes
Throttle at > 95%	3.62 %	00:14:39	As a % of Driving Time
Green Band Driving	63.70 %	03:37:17	As a % of Driving Time
Cruise Control	0.00 %	00:00:00	As a % of Driving Time
Time in Dx Mode	0.00 %	00:00:00	As a % of Engine Run Time
Coasting	0.00 %	00:00:00	Moving with full accelerator and no brake and no cruise control engaged in or out of gear
Speeding Incidents	0.00 per hour	-	No. of instances per hour of driving time
Over Revving Incidents	0.00 per hour	-	See Gear Report for details
Harsh Braking Incidents	0.15 per hour	-	No. of instances per hour of driving time
Exhaust Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Service Brake Usage	0.00 per hour	00:00:00	Per hour of Driving Time
Gear Engagements	221.53 per hour	-	Per hour of Driving Time
Average Engine Torque	31.61 %	-	As a % of Engine Reference Torque
Average Speed	10.51 MPH	-	
Maximum Speed	60.95 MPH	-	
Odometer Reading Start	138462.00 Mile(s)	-	Earliest odometer reading for the period
Odometer Reading End	138532.90 Mile(s)	-	Latest odometer reading for the period
Odometer Distance	70.90 Mile(s)	-	Distance travelled by this resource between the start and end odometer readings

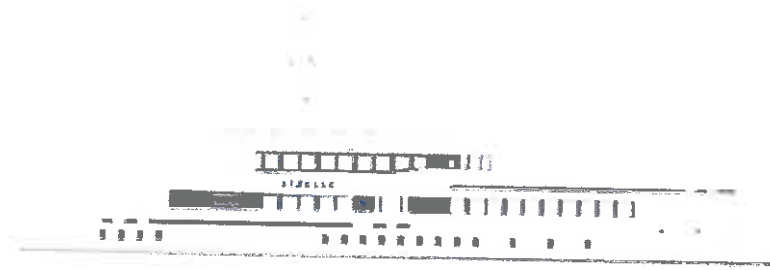
Selected Group: Canning Dustcart  123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 55 Days
Fuel Consumption	5.42 MPG	-	Excludes Excessive Idling and Stationary Emissions Calculated based on HGV guidelines
Rolling Fuel Consumption	5.46 MPG	-	
Total Fuel Used	59.60 Litre(s)	-	
Excessive Idling-Fuel Used	0.50 Litre(s)	-	
PTO-Stationary-Fuel Used	0.00 Litre(s)	-	
Carbon Emissions	348.93 lbs	-	
Average Axle Load	0.00 lbs	-	
Peak Axle Load	0.00 lbs	-	
Peak Axle Load Location	0.00	-	

Selected Group: Canning Dustcart  123 Performance Report v1.6		Analysis Period 20/09/2017 00:00:00 13/11/2017 23:59:59	Analysis Duration 55 Days
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ATMOS CLEAR

TEST RESULTS

Company	Manufacture	Model	Engine size	type	MPG increase	Emissions reduction
Viridar	Volvo	F260	7186cc	Dust cart	18.82%	83% reduction on Vosa smoke test
RD&E (NHS)	Iveco	Stratus	7900cc	HGV rigid	New trial	64.29% reduction on Vosa smoke test
RD&E (NHS)	Ford	Connect	1800cc	Delivery van	New Trial	90.84% reduction on Vosa smoke test
Hunts Food	DAF		6692cc	Rigid delivery	10.59%	68.80% reduction on Vosa smoke test
Hunts Food	DAF		6692cc	Rigid delivery	3.71%	40% reduction on Vosa smoke test
URP	Combilift	-	2000cc	Forklift	N/A	67.5% reduction on Vosa smoke test
URP	Hyster	-	2000cc	Forklift	N/A	54% reduction on Vosa smoke test
URP	Iveco	-	3111cc	Forklift	N/A	40% reduction on Vosa smoke test
SW Comms	Peugeot	Partner		Van	14.58%	Decrease in Co2 = 149.5kg over 3698.3 miles



24th January 2019

Ref: Atmosclear/Testing

Dear Atmosclear team,

Following the fitment of the Hydrogen unit we have covered over a 3000 running hours between 2x 125KW John Deere diesel generators and would like to give some feedback on these units.

Firstly I am Chief Marine engineer with over 35 years of experience to date with diesel engines to the highest level, during this period I have been exposed to many products with high claims be it magnets, additives, electrical devised etc. so I was very sceptical from the outset of installation.

On first sight and after an interesting discussion it was clear it was a well-made and impressive product whilst retaining end user simplicity.

Both our marine diesel engines were used as the test bench which have been used on fixed loads and data monitored from new.

Upon fitment an immediate difference was seen of hydrocarbon deposits on the surface of the water at over-board discharge and a slightly smoother power delivery.

Calculations were made in normal operating conditions over a 6 month period and figures shows up to 10% fuel saving are achieved with no detrimental effects on the engines noted. We always complete regular oil analysis through a laboratory and the carbon deposits had risen after installation then dropped off much lower values on following samples indicating the internal cleaning process as described.

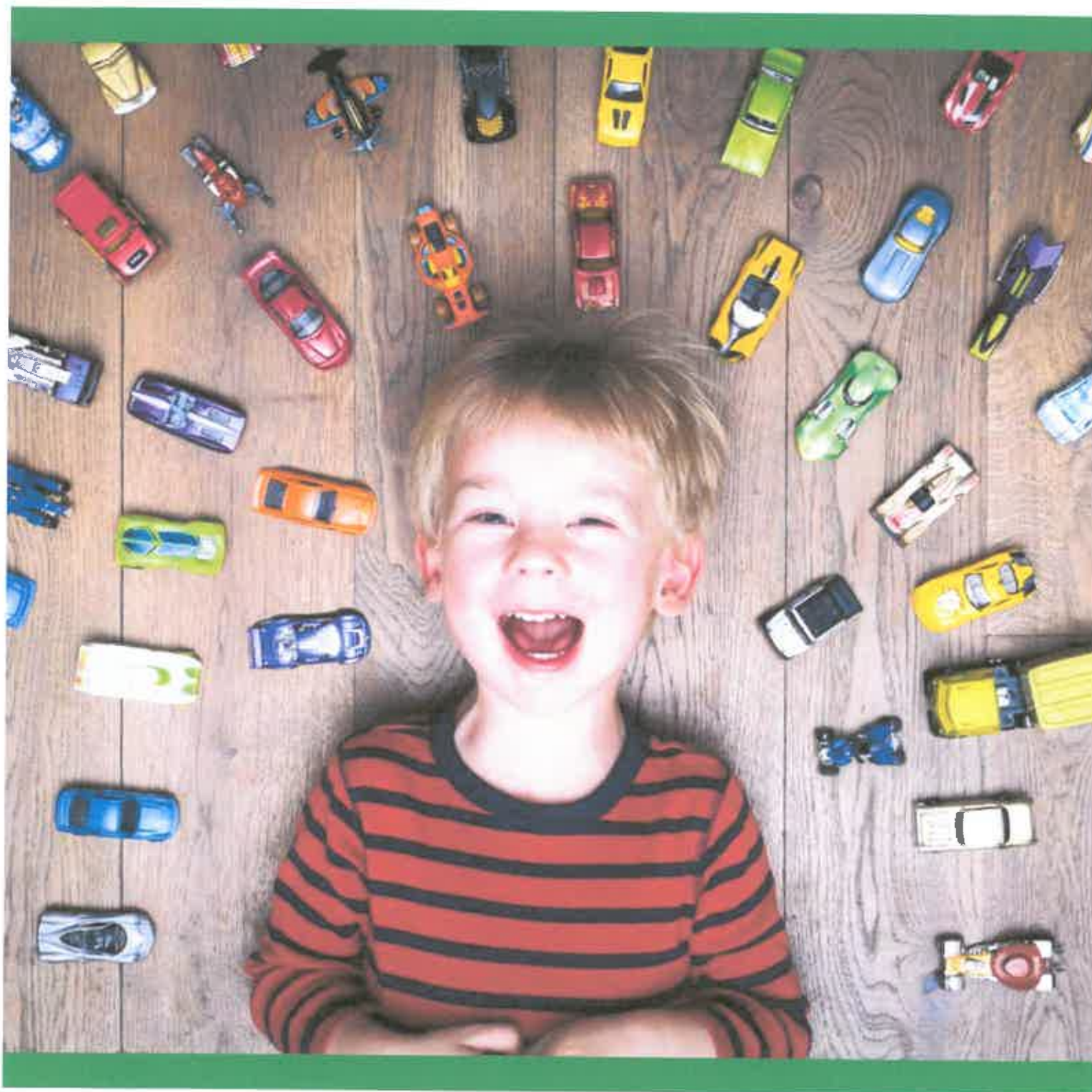
Testing on-board during the last full season has shown drastic reduction of carbon deposit on the water and air-borne emissions of diesel particulate matters which is important to the welfare of guests and crew along with environmental damage reduction.

I am very excited by these hydrogen generating units, there rugged, simple and brilliantly engineered we will continue to operate and monitor over the forth coming period and my biggest mystery is why to date this technology is not being embraced by engine manufactures?

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Proposal 2

Existing vehicles

Reply

Existing vehicles should be able to stay on much longer than adopting an 8 year life finance on some vehicles are spread over 5-8 years depending on the cost of the vehicle some vehicles being operated cost any where from £20,000- £60,000 especially specially converted WCA vehicles conversions alone can cost £25,000 onto of the cost of the vehicle.

Existing vehicle testing structure is very good in Northumberland and probably much safer than most authority's due to strict testing and interim testing which works very well as older vehicles are tested between 3 and 4 times per year.

Age limits & advice from other councils

Info taken from Blackpool Council taxi policy

5.3 Maximum age of vehicles Vehicles will not be licensed beyond 14 years of age unless they satisfy the exceptional quality test.

5.4 Vehicle Testing Vehicles are tested in accordance with the table below.

*Certificates of compliance are issued to vehicles who meet the required standard Below 14 years of age**

2 inspections per year Over 14 years of age 3 inspections per year

**The Public Protection Sub Committee retains the right to increase the number of tests to three per year in respect of vehicles under the age of 14 years due to maintenance issues.*

*Next page shows **Transport for Londons** proposed policy amendments and they are no where as severe as what NCC are proposing they are also considering what we are trialling re lowering emissions.*

Proposal 2 continued..

Info taken from UK Government's taxi policy guideline & best practice page 8.

- *Age Limits. It is perfectly possible for an older vehicle to be in good condition. So the setting of an age limit beyond which a local authority will not license vehicles may be arbitrary and inappropriate. But a greater frequency of testing may be appropriate for older vehicles - for example, twice-yearly tests for vehicles more than five years old.*
- *Environmental Considerations 39. Local licensing authorities, in discussion with those responsible for environmental health issues, will wish to consider how far their vehicle licensing policies can and should support any local environmental policies that the local authority may have adopted. This will be of particular importance in designated Air Quality Management Areas (AQMAs), Local authorities may, for example, wish to consider setting vehicle emissions standards for taxis and PHVs. However, local authorities would need to carefully and thoroughly assess the impact of introducing such a policy; for example, the effect on the supply of taxis and PHVs in the area would be an important consideration in deciding the standards, if any, to be set. **They should also bear in mind the need to ensure that the benefits of any policies outweigh the costs (in whatever form).***

Just because a vehicle is older does not mean it is no longer fit for purpose disposing of these vehicles will have a huge environmental impact when they are fit for purpose there is enough evidence to show that an 8 year age limit is extremely harsh on an already strained trade.

We as a company are looking at ways that we can offset our carbon footprint obviously we have invested in trailing the ATMOS-CLEAR EXO1 which makes a huge impact but what about working together to make a bigger difference we have also looked into other methods for our trade how about a simple idea of adding onto licence fees the cost of planting trees in Northumberland which is our beautiful county we have not been able to find a scheme in Northumberland but there may be one so we have found a scheme in Scotland which is £6.00 per tree and you get a certificate to prove this has been done I do not believe any driver/ operator would have an objection to this sort of scheme in Northumberland making it even better by offsetting each vehicle with the correct amount of trees to help combat the effect of the trades CO2 emissions. This will make a huge difference to our beautiful Northumberland environment

Trees for life is one of the best ways to offset some of our carbon footprint and as a trade and Licensing authority we should be also looking into this also or similar schemes.

Next page shows the certificate we have from just trying this scheme



TARGET TAXIS LIMITED

Two trees have been planted for:

TARGET TAXIS LIMITED

A small way to lowering our carbon footprint :)



Proposal 3

Wheelchair access vehicles

Reply

Wheelchair access vehicles cost thousands more than passenger cars and this must be considered vehicle conversions can cost up to £25,000 just for the conversion this does not include the cost of the vehicle.

We operate many wheelchair access light commercial vehicles and we source them from the NHS / Passenger transport services and similar companies and can cost in excess of £30,000 for a 6-7 year old vehicle with the correct size and capabilities to operate and accommodate the wheelchairs we transport which are NOT standard size wheelchairs not many wheelchairs are standard size anymore and most smaller access vehicles could not accommodate these leaving many stranded with no transport.

Due to the cost of these vehicle's if the policy for Euro 6 for these vehicles goes ahead there will be very few WCA vehicles in Northumberland as not many will invest in these vehicles any more and will stick to passenger cars leaving Northumberland not able to meet its criteria for WCA vehicles.

Many of our large WCA vehicles only do specialist transport i.e. Home to school SEN transport, WCA contracts and the public who cannot get their NON standard wheelchair into the much smaller vehicles which means many of them are only on the road 400-800 hours per year but cost on average £35,000 but are still MOT tested 3-4 times per year which we are in full agreement with some of our vehicles are COIF tested for 1-3 wheelchair users which most don't.

We operate a fleet of 41 vehicles , 13 of which are fully larger wheelchair access capable to replace 1 of these multi wheelchair vehicles is in excess of £60,000 if they had to be replaced with Euro 6 within the next 3 years reducing Northumberland's WCA fleet across the county should not even be an option for the LA.

UK Government requires larger vehicles taken from best practice and guidelines.

3.6 Taking this approach allows the provisions of section 165 of the Act apply to a wider range of vehicles and more drivers than if LAs only included on the list vehicles capable of taking a larger type of wheelchair.

3.7 The Government recognises that this approach will mean that some types of wheelchair, particularly some powered wheelchairs, may be unable to access some of the vehicles included in the LA's list. The Act recognises this possibility, and section 165(9) provides a defence for the driver if it would not have been possible for the wheelchair to be carried safely in the vehicle. Paragraph 3.10 of this guidance below aims to ensure that users of larger wheelchairs have sufficient information about the vehicles that will be available to them to make informed choices about their journeys.

Showing larger WCA vehicles are required !

Proposal 4 ' Full Electric' and Zero emissions @source

How can a vehicle be exempt when it still has the same running gear as every other vehicle on the road the only difference is the electric motor maybe to encourage these vehicles make the licence fee zero but still make them come under the same guidelines as other vehicles with same age life for taxis.

Until our county has the infrastructure for these vehicles they really are not a viable option as they are not capable of completing long journeys they do not have the same range , size of vehicle and same cost !

Electric cars: pros and cons

Pros

- Zero emissions
- Buying incentives
- Low running costs
- Tax benefits
- Comfort
- Acceleration

Cons

- Charging points
- Charging time
- Battery range
- Purchase price
- Vehicle size to take lugagge

The future will probably be electric but for the foreseeable future we don't know enough to just end what works within the trade even delay the implementing the amendments for a few years while the future becomes more certain in the transport industry.

PLEASE SEE PAGE AFTER THIS ONE FOR PROS & CONS PETROL VS DIESEL VS ELECTRIC

ADDITIONAL COMMENTS

Could I also ask for our policy on fire extinguishers to be considered by the licensing panel as this has huge environmental issues as every 12 months the trade disposes into landfill at least 1100 of these when they are perfectly acceptable this is another issue the LA requires to consider when it has time.

Last but not least we need to give consideration to job losses with in the trade & also supply chains surrounding the trade we need to be mindful that we want the same things helping the environment working together but we do not want the job losses or the stress and mental wellbeing of the trade to be affected and these also all need to be taken into account when policy amendments are introduced.

Pros	
Electrical Vehicles	Diesel Engines
Zero emissions (excluding grid-supplied generation)	Lower lifetime cost than petrol because of lower depreciation
Minimal noise pollution and a quiet traveling experience	Engines last longer and tolerate much higher mileages than petrol
Zero road tax and congestion charging	More efficient (by around 25% compared to petrol) so fuel costs are less, providing pump prices stay close. Diesel's better mpg becomes more pronounced over long distance journeys. Some diesel engines can even be more fuel-efficient than a petrol hybrid
Presents a green image - but not a tangible benefit	Produce less CO2, so road tax is lower than petrol - but depends on the policy
High residual value	Higher torque or pulling power means a mid-range acceleration of larger diesel cars is often better than sports cars. This pulling power is why diesel is used for commercial vehicles: it can pull much greater loads than any other option here
Instant acceleration	Tend to depreciate at a lower rate than petrol/gasoline engines
Initial costs can be reduced from Government incentives and tax breaks	Diesel engines can deal with various fuel types beyond conventional diesel. Biodiesels could be a game changer for diesel engines in the future
Maintenance costs are much lower over the vehicles lifetime compared to internal combustion engines	
Cons	
Electrical Vehicles	Diesel Engines
Expensive to buy	More expensive than petrol to buy (historically)
Limited range	Produce nitrous oxides, hydrocarbons, and particulates, so not necessarily greener than petrol and definitely at a disadvantage compared to EVs
Extensive time to recharge	Insurance is higher for diesel engines rather than petrol engines, by up to 15% - because they cost more to replace or repair

<p>Scarcity of recharging points</p>	<p>Engines generally require a little less routine servicing but if they do go wrong, repair costs are higher. Latest figures show diesel engines are slightly less reliable than petrol</p>
<p>Electricity is usually generated by fossil fuel power stations so in essence defeats the purpose of 'going green'</p>	<p>Volatile fuel price</p>
<p>Danger to pedestrians of silent approach</p>	<p>Oil is a finite resource</p>

Many thanks for taking the time to read my comments I hope some of them are helpful

Kind regard's

Mr Martyn James Reed

Target Taxis Limited

TFL

Taxi age limits and exemptions – additional information

What changes are being introduced?

The changes being introduced are:

- The maximum taxi operating age is being mandated so that this is the same as the relevant taxi age limit
- The age limit for Euro 2, 3, 4 and 5 diesel taxis will be reduced by one year each year between 1 November 2019 and 1 November 2022
- The taxi age limit exemptions for alternative fuel conversions, historic and classic/niche vehicles, and for hardship/personal circumstances are being removed

When are the changes being introduced?

The table below shows when the changes will come into effect and the taxis affected.

Date	Change	Taxis affected
1 November 2019	<ul style="list-style-type: none">• Maximum taxi operating age mandated• Exemptions for alternative fuel conversions, historic and classic/niche vehicles and hardship/personal circumstances removed	<ul style="list-style-type: none">• All licensed taxis• Exemptions granted prior to 1 November 2019 will be retained
1 November 2020	<ul style="list-style-type: none">• Age limit reduced to 14 years	<ul style="list-style-type: none">• Euro 2, 3, 4 and 5 diesel taxis
1 November 2021	<ul style="list-style-type: none">• Age limit reduced to 13 years	<ul style="list-style-type: none">• Euro 2, 3, 4 and 5 diesel taxis
1 November 2022	<ul style="list-style-type: none">• Age limit reduced to 12 years	<ul style="list-style-type: none">• Euro 2, 3, 4 and 5 diesel taxis

How is the taxi vehicle age calculated?

No change has been made to how taxi vehicle ages are calculated and this is still from the date of the vehicle's first registration with the DVLA under the Vehicle and Excise Registration Act 1994.

How will the changes affect different taxis?

Further information on what the changes mean for different taxis is below.

Taxi	Changes	What this means
Euro 2, 3, 4 and 5 diesel taxis	<ul style="list-style-type: none"> From 1 November 2019 the maximum taxi operating age will be mandated Between 1 November 2020 and 1 November 2022 the age limit will be reduced by one year each year From 1 November 2022 the age limit will be 12 years 	<ul style="list-style-type: none"> Between 1 November 2019 and 31 October 2020 the maximum operating age will be 15 years and no Euro 2, 3, 4 or 5 diesel taxi will be relicensed once it is 14 years or older Between 1 November 2020 and 31 October 2021 the maximum operating age will be 14 years and no Euro 2, 3, 4 or 5 diesel taxi will be relicensed once it is 13 years or older Between 1 November 2021 and 31 October 2022 the maximum operating age will be 13 years no Euro 2, 3, 4 or 5 diesel taxi will be relicensed once it is 12 years or older From 1 November 2022 the maximum operating age will be 12 years and no Euro 2, 3, 4 or 5 diesel taxi will be relicensed once it is 11 years or older
Euro 6 diesel taxis	<ul style="list-style-type: none"> From 1 November 2019 the maximum taxi operating age will be mandated 	<ul style="list-style-type: none"> The maximum operating age for Euro 6 diesel taxis will be 15 years From 1 November 2019 no Euro 6 diesel taxi will be relicensed once it is 14 years or older TfL is considering how Euro 5 vehicles that meet a Euro 6 standard, if a retrofit solution is approved, could be incorporated in these changes.
Zero emission capable (ZEC) taxis	<ul style="list-style-type: none"> From 1 November 2019 the maximum taxi operating age will be mandated 	<ul style="list-style-type: none"> The maximum operating age for ZEC taxis will be 15 years From 1 November 2019 no ZEC taxi will be relicensed once it is 14 years or older
Taxis converted to liquid petroleum gas (LPG) before to 1 November 2019	<ul style="list-style-type: none"> From 1 November 2019 the maximum taxi operating age will be mandated 	<ul style="list-style-type: none"> The maximum operating age for taxis converted to LPG before 1 November 2019 will be 20 years Taxis converted to LPG before 1 November 2019 will not be relicensed once they are 19 years or older

Taxi	Changes	What this means
Taxis converted to LPG from 1 November 2019	<ul style="list-style-type: none"> From 1 November 2019 the maximum taxi operating age will be mandated 	<ul style="list-style-type: none"> The maximum operating age for taxis converted to LPG from 1 November 2019 will be 15 years
Taxis granted a one year exemption on hardship/personal circumstances grounds	<ul style="list-style-type: none"> From 1 November 2019 these exemptions will be removed 	<ul style="list-style-type: none"> Taxis converted to LPG from 1 November 2019 will not be relicensed once they are 14 years or older Exemptions issued prior to 1 November 2019 will remain in place

What does mandating the maximum operating age mean?

Mandating the maximum operating age means that no taxi will be licenced to operate over its relevant maximum age limit (e.g. into its 16th year if it has a 15 year maximum age limit). This change will apply to all licensed taxis.

If a taxi has a 15 year age limit then it will not be relicensed if the new licence would expire **after** the date on which the taxi was 15 years old. For a taxi with a 15 year age limit the latest date it could be relicensed would be when it was 14 years old. The licence would then expire on the same day as the taxi was 15 years old.

Will shorter or longer taxi vehicle licences be issued?

Section 6(4) of the Metropolitan Public Carriage Act 1869¹ specifies that taxi vehicle licences can only be issued for one year. There is no discretion to issue licences which are shorter or longer than 12 months.

How can I book a taxi licensing inspection?

You can make a booking online [here](#) or call 0343 222 5555

¹ Section 6, Metropolitan Public Carriage Act 1869, <https://www.legislation.gov.uk/ukpga/Vict/32-33/115/section/6>