FreightBestPractice

Department for Transport

Fuel Saving Devices

Guide

Acknowledgements

Freight Best Practice wishes to thank the following organisations for their contributions to the development and production of the Fuel Saving Devices Guide:

The Automobile Association

Association of Car Fleet Operators

Confederation of Passenger Transport

Consumers' Association

Freight Transport Association (FTA)

Government Office for the South West

Lorry Logic

Chartered Institute of Logistics and Transport (CILT)

Society of Operations Engineers (SOE)

CHiPtech

RAC Motoring Services

Road Haulage Association (RHA)

University of Huddersfield

Fuelwise

The Society of Motor Manufacturers and Traders (SMMT)

Foreword

Freight Best Practice is funded by the Department for Transport and managed by Faber Maunsell Ltd to promote operational efficiency within freight operations in England.

Freight Best Practice offers FREE essential information for the freight industry, covering topics such as saving fuel, developing skills, equipment and systems, operational efficiency and performance management.

All FREE materials are available to download from **www.freightbestpractice.org.uk** or can be ordered through the Hotline on **0845 877 0 877**.

Throughout this guide you will see this signpost - directing you to relevant publications from the Freight Best Practice programme.

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1 Introduction

Fleet managers are frequently bombarded by sales literature for products that offer fuel savings that often seem too good to be true. Under pressure to cut costs, a busy manager might be strongly tempted by a ‘fit and forget’ device that ‘allegedly pays for itself in months’. Indeed, given the size of the savings, how could you justify turning down such an offer? On the other hand, what if the product doesn’t work? Installing it would waste money; worse still, it might damage your vehicles. Even if it does no harm, it would be better to spend your money, and time, on other more effective fuel saving measures.

So how can you judge if these products are worth the investment?

This guide is designed to help. It is crammed full with practical tips to help you separate the spurious from the genuine in fuel saving claims. It also gives plenty of advice on how to conduct proper tests, should you get to the stage where you want to test a product.

1.1 How to Use this Guide

If you are considering investing in a fuel saving device, your evaluation should be a three-step process. This guide is designed to give you advice at each stage:

- Firstly, consider whether this is likely to be the most cost-effective way for you to save fuel in your vehicles - see Section 2
- If you decide a product is worth investigating, try to understand how it is likely to work and whether its claims for fuel saving can be trusted - see Section 3
- Still want to go ahead? Then think about how you’re going to test the product on your vehicles - see Section 4

2 Where Do You Start?

You don't need to have studied mechanical engineering or the chemistry of fuels in order to evaluate the effectiveness of various fuel-saving devices. However, some technical know-how in these areas is extremely useful if you want to avoid sales people pulling the wool over your eyes.

2.1 Essentials You Need to Know

First of all, how does fuel move from bulk store to vehicle wheels?

The Five Stages of the Fuel Process:

- Delivery, storage and dispensing
- Vehicle tank to engine
- Through engine to flywheel
- Flywheel to road wheel
- Energy to vehicle motion

Fuel can be lost at every one of these stages. However, very little of the fuel is left unburned in the engine to flywheel step. The laws of thermodynamics and the engine's basic design control the efficiency of an engine as an energy converter. There is precious little any vehicle operator can do to make fuel savings in this combustion step. So, any product that claims to significantly improve the combustion process is either bogus or saving fuel at another stage.

On the other hand, good operational engineering and vehicle and driver management do offer great scope for fuel savings. These must be your first priorities for saving fuel as, for example, the potential benefit of any fuel additive or device is likely to be far less than that achieved through driver training.

Remember:

- You cannot manage what you cannot measure
- If consistent, accurate fuel consumption data is not available, then any attempt to assess the effects of change is doomed to fail
- Bad information is worse than no information, since action taken on the strength of it could be counter-productive

See the Freight Best Practice Guides

Fuel Management Guide

SAFED for HGVs: A Guide to Safe and Fuel Efficient Driving for HGVs

Fuel Saving Tips

A full list of the **FREE Freight Best Practice** publications can be obtained from the Hotline **0845 877 0 877** or by visiting the website at **www.freightbestpractice.org.uk**

3 Product Types

This section outlines some of the common types of fuel additives and devices that are available. It describes how they are supposed to work and helps you assess if they are likely to reduce your fuel consumption.

3.1 Aftermarket Fuel Additives

These usually claim to reduce foaming in diesel, reduce wear in the fuel injection system, minimise deposits, improve fuel consumption or reduce emissions. They are also advertised as being able to improve efficiency of the combustion process by controlling combustion deposits and preventing bacterial growth (especially in diesel).

Deposit Removal Additives

Some products claim to help restore an engine to original condition by removing deposits that build up on injectors, cylinder walls and valves. The combustion process creates deposits that have the potential to affect fuel consumption, but it is difficult to establish the precise fuel-saving benefit of removing them because results vary with age of engine and extent of deposits. The potential benefit from such products must be small, especially on well-maintained vehicles. These products need to be evaluated widely over a large number of vehicles of varying age and operation to determine any potential savings. See Section 4 for details of how to perform these tests.

Bacterial Growth Prevention Additives

Bacteria can multiply rapidly in diesel, clogging fuel filters and affecting combustion. Bacteria can develop in water-contaminated petrol too. Some additives claim to prevent bacterial growth caused by water contamination. Remember though, that no additive is suitable for both diesel and petrol.

Water/Diesel Emulsifiers

Adding water to diesel is normally taboo, but it is claimed that if an emulsifying agent is added, the resultant blend has the potential to reduce emissions and improve fuel consumption. It is always important to remember that water has no calorific value, (i.e. no energy content). Using a water\diesel emulsion will therefore de-rate an engine because the water displaces fuel and reduces the fuel energy available.

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Producing an acceptable water/diesel emulsion is not simple, and it is crucial that the final product is stable and does not allow separation of the water and diesel components during bulk storage or in a vehicle fuel system. If separation does occur, corrosion in engines, fuel systems and storage tanks is inevitable.

A well-designed emulsion has the potential to reduce certain emissions and slightly improve efficiency, but a poorly designed emulsion will produce no benefits and can cause serious engine damage.

Caution!

Before using an additive or fuel treatment be aware of the possibility of accelerated engine wear or undesirable side effects. It may be difficult to establish whether reliable, long-term tests for these effects have been carried out on equipment similar to yours.

- Some additives can produce long-term negative effects, such as the creation of deposits or ash
- Some additives may cause the fuel to become more abrasive or corrosive, resulting in fuel-line corrosion, lubrication problems or blocked filters
- Some additive ingredients, such as phosphorus, sulphur and some metals, may affect exhaust catalysts
- Additive tests carried out abroad on non-UK fuels (which can contain less stable and lower quality blending components than in the UK) may show improvements that cannot be repeated when applied to modern UK specification fuels

3.2 Combustion Improvers - Catalysts and Magnets

This term is used to describe many aftermarket products, but “improvement” in this context can only mean reducing the amount of unburned fuel, changing the rate of burning, or improving the fuel’s ignition quality. Any quoted fuel savings for such products must be highly questionable.

Catalysts and Magnets - The Science Bit!

- In correctly maintained engines working under normal operating conditions, combustion efficiency is close to 100% (in terms of the mass of fuel burned). Manufacturers take great care to optimise the ignition timing of petrol engines to suit the burning speed of pump fuel. So, faster-burning fuel mixtures would lead to a deterioration in engine performance unless the ignition timing was changed. Under normal engine operating conditions with optimised ignition, a change in burn time gives little or no improvement in power/efficiency
- Without retarded ignition timing, faster burning can result in a higher combustion temperature (with increased NOx emissions) and a higher unburned gas temperature ahead of the flame. This will increase the tendency to auto-ignite (knocking). This is exactly opposite to advertised claims that these products simultaneously increase burning speed and reduce knock tendency
- Diesel engine manufacturers also go to great lengths to optimise fuel injection and airflow characteristics to achieve optimum ignition delay and main burn characteristics for fuel of standard cetane rating. So any changes in the evaporation, mixing and ignition delay properties of fuel by fuel-saving products are more likely to result in a move away from optimum performance, unless the engine is recalibrated
- There is no evidence that even quite strong magnetic fields can cause ionisation in gases or significantly influence combustion. Suppliers have produced little or no evidence that these types of fuel-saving device actually work

Claims Made for these Products Include:

- Improved combustion efficiency/engine efficiency (with reduced CO_2 emissions)
- Higher power output
- A reduction of other exhaust emissions (CO, NOx unburned hydrocarbons, soot or particulates)
- Reduced tendency to knock
- Valve seat protection

These products claim to work in both spark-ignition and diesel engines and also modify the chemical and/or molecular structure of the fuel in some way. The effects of these “benefits” are quoted as:

- Faster burning of the fuel/air mixture
- A reduced propensity to auto-ignite (reduced knock tendency)
- Fewer combustion/fuel-derived deposits in the engine

Commercially available “catalyst” devices are normally placed in the fuel tank or in the fuel line close to the engine and typically claim:

- To use tin as the principal active ingredient
- To alter the molecular structure of the fuel and/or help bonding between fuel and oxygen
- Not to deteriorate or reduce in weight with use

If the products do work in the way their suppliers claim, evidence of changes to the chemical composition of fuel should be available.

Remember

- No scientific evidence is available to support claims that magnetic or electromagnetic devices clamped to air and fuel pipes have any influence on the properties of the combustion mixture
- Fleet trial results presented as evidence may be inconclusive (See Pitfalls to Avoid, Section 4, page 8)

Until acceptable laboratory tests have been followed by controlled fleet trials, achieving repeatable, verifiable results, it is recommended that products of this type be treated with great caution.

3.3 Lubricating Oils and Additives

There are two main types of product that claim to have fuel-saving credentials:

- 'Special' Base Oil Formulations (BOF)
- Aftermarket supplementary Lubricant Additive Treatments (LATs)

One common misconception is that oils with a synthetic component automatically provide both fuel-saving potential and adequate engine protection. The overall performance of premium-quality synthetic oils is a result of combining the synthetic base oil with performance-enhancing additives to minimise deposit formation and wear.

It is widely claimed that using synthetic or part-synthetic oils in both the engine and the transmission of a heavy goods vehicle has the potential to improve fuel performance. Improvements of 3-5% are often quoted, but it is not always clearly stated whether the synthetic oil is being used in the engine alone or in the engine, gearbox and drive axle. You also need to bear in mind that any fuel saving potential of these products is offset by the higher cost of synthetic or part-synthetic oils.

Some truck operators claim substantial fuel economy gains from low-friction oils, whereas others find hardly any difference.

The two main components of lubricant technology that help to reduce friction and improve fuel consumption are:

- Low viscosity
- Friction-reducing additives

Oils and Additives - The Science Bit!

- The viscosity characteristics of a lubricant influence the level of viscous drag in the oil films that are generated between moving parts in an engine, for instance between crankshaft journal and bearing. When trying to reduce viscosity to decrease viscous drag you also need to make sure that oil film thickness is not affected (which is needed to protect moving parts against wear)
- Synthetic lubricants, with their lower viscosity, offer some fuel-saving potential when used in the drive axle and transmission. Since these oils are drained less frequently you need to use a smaller total quantity. You need to take this into account when you estimate the cost of switching to synthetic lubricants in the axle and transmission
- Don't confuse marketing jargon with proper oil performance standards such as the E4 and E5 'sequences' of the Association des Constructeurs Europeéns d'Automobiles (ACEA), a European vehicle manufacturers' organisation (**www.acea.be**) or the American Petroleum Institute's (API) standards, such as API C1-4 (**www.api.org**). Both sets of standards are built around a range of chemical, physical and engine tests and are the only true basis for performance comparison. Vehicle manufacturers quote them, often adding their own individual company performance standards

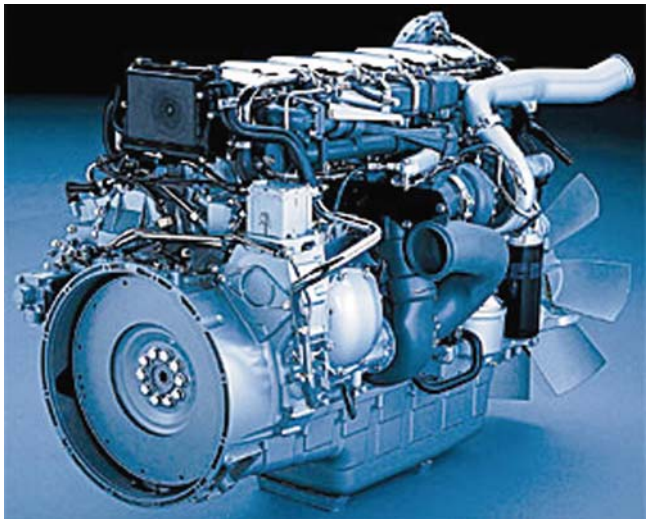
3.4 Claims for Oil Additives

Aftermarket additives marketed on the basis of improved fuel economy typically include chemicals that are said to:

- Reduce friction
- Kill bacteria
- Reduce corrosion

However, when a particular treatment is added to an off-the-shelf oil, it is impossible to know whether or not it will conflict with the additives already present in that oil. Suppliers of oil formulations might argue that their products already contain the additives necessary to perform the functions claimed by these aftermarket products. Any third-party additive could upset the balance of the formulation, causing a possible reduction in engine protection.

In principle, lubrication technology has the potential to improve fuel economy. As an example, at least one big manufacturer is confident enough to offer a money-back guarantee if fuel costs are not cut by at least 4% when you use the latest low viscosity oils (e.g. 0W-30 oil), but fleet operators should remember the risks involved if the fuel-saving objective is allowed to override other functions of a lubricant. Mixing aftermarket lubricant additives with existing oil formulations carries a high risk if the exact compositions of both are not known and assessed by lubricant experts. Consult the manufacturer before testing any supplementary treatment.



Fuel Saving Devices and Emissions - The Green Bit!

Fuel saving devices sometimes claim not only to improve fuel consumption but also to cut exhaust emissions. Such claims should never be taken at face value.

Remember

- Only CO_2 emissions are directly related to fuel efficiency
- A reduction in exhaust emissions does not necessarily mean that less fuel is being used
- Measures to reduce some types of emission may worsen fuel consumption
- Using less fuel does not always mean a reduction in emissions
- Don't assume that improved fuel consumption will mean an automatic reduction in all emissions

3.5 Euro IV and Euro V Legislation

Euro IV (implemented in Oct 2006) and Euro V (to be implemented as of Oct 2009) are standards set by the EU to control the level of engine exhaust emissions. At the moment there are two options available for operators to meet these requirements, using either the SCR (Selective catalytic reduction) or the EGR (Exhaust gas recirculation) method.

- SCR involves the addition of a fine spray of urea additive (such as Adblue) into the exhaust gas flow to help break down noxious gases. This additive is stored on the vehicle, separate to the diesel fuel, and will require topping up - it is important to note that this is not a fuel additive
- The EGR package consists of a valve that utilises the exhaust back pressure to allow flow back to the inlet manifold or to the compressor in a turbo charged engine. The gas is then passed through a particulate trap to remove harmful particles
- Both systems can be retrofitted, to enable older vehicles to comply with the new standard

- EGR is reported to be the simpler to install due to its use of existing parts
- It is alleged that SCR can lead to approximately 5% fuel savings, as the reductions in exhaust emissions mean the engine can be retuned to run more efficiently. These fuel savings would be offset by the cost of the urea additive, alleged to leave roughly a 2% overall operating cost saving

Operators intending to buy newly registered vehicles after October 2006 need to be aware of the requirements to comply with the Euro IV emission standards. Before considering implementing a fuel saving device on these newly registered vehicles, operators should consider the potential impact on compliance with the appropriate Euro standard.

4 Testing, Testing

National, European and international standards cover a wide range of materials, products and processes, including automotive fuels and many vehicle components. Most of these standards include references to approved test methods. BS EN 590 for diesel fuel, for example, has 15 requirements for fuel performance, each linked to at least one approved test method, however, the UK aftermarket for fuel saving devices is unregulated, except by advertising and trading standards' bodies.

4.1 Product Testing

If you decide that you need to assess specific products there are various options available to you. These include:

- Laboratory tests of complete vehicles
- Laboratory tests of engines or other equipment
- Vehicle tests on a chassis dynamometer
- Vehicle tests on a test track, on public roads or in everyday service

Each method has its place, advantages and limitations.

Choice of test method is more likely to be constrained by available time, money and other resources rather than any difficulty in identifying the best technical approach. One key consideration is the degree of accuracy and repeatability required in the test.

If a particular fuel saving device claims to change fuel consumption by 15-25%, then a test with an accuracy or repeatability confidence level of around ± 4% is good enough to establish if this size of change is achievable, but if the test needs to measure savings of 3-5% these confidence levels must be better than ±1%.

The obvious way of testing a fuel saving device is to fit it to a vehicle in service and then compare fuel consumption before and after. However, tests of this kind have to be very carefully managed and controlled. In general, laboratory and special off-road vehicle tests are more likely to produce accurate and repeatable results than in-service tests. Any improvements obtained under test conditions still need to be related to the actual potential for improvement on a given vehicle working on specific duty patterns.

Of 106 devices listed by the US Government's Environmental Protection Agency (EPA) only five indicated a statistically significant improvement in fuel economy without an increase in exhaust emissions.

None of the five devices modify the engine or the fuel. All focus on modifying driver habits or controlling air-conditioning systems (see **www.ftc.gov/bcp/conline/pubs/autos/gasave.htm**).

US fleet operators have the option of telling product suppliers that they will not run their own trials until they receive a satisfactory report stating that the product has been tested in accordance with EPA recommendations.

They're Only Human

Before you start testing fuel saving devices to find out whether they really are cost-effective in your fleet, you need to be aware that people involved in the tests could unintentionally have a huge impact on the results:

- If drivers know that close attention is being paid to the fuel consumption of their vehicle during a test period they may modify their driving styles. For example, it would be difficult to claim that drivers were impartial if the test is associated with issues that could affect jobs or payment rates
- Vested interest is another motivational effect. A transport manager who has been persuaded to run a test on a fuel additive in order to cut fuel costs will be keen to have a successful outcome
- When a driver is required to follow a detailed test procedure on an unfamiliar test track or road circuit there is likely to be a change in their level of confidence and driving style between successive circuits. So you cannot assume that the first circuit will be driven in exactly the same way as the last, or any intermediate circuit. Driving style will often be a factor in the results
- Don't assume that everyone has an unvarying driving style and will produce consistent fuel consumption figures day after day. Improvements to driving technique due to training may fall away over time and need topping up periodically with refresher courses

Training and motivating drivers in fuel-efficient driving techniques is one of the most cost-effective approaches to fuel saving. Invest your time and money here.

For more information see the **Fuel Management Guide**, or why not give each of your drivers a copy of **Fuel Saving Tips**? These can be ordered from the Hotline on 0845 877 0 877 or downloaded from **www.freightbestpractice.org.uk**

Pitfalls to Avoid

Poorly Organised Trials

A haulage company with six vehicles endorsed a new product, quoting savings of between 20-33%. But a spokesman admitted that the company did not keep accurate fuel records and that the savings had been derived from driver feedback. The spokesman also mentioned that the company had a variety of vehicles doing mixed work, that refuelling took place at a nearby filling station and that the product had been "tested" for only a few weeks.

The Dangers of Ignoring Seasonality

A major transport company that had run numerous trials over many years tested a fuel-saving product for 28 weeks. Two vehicles were fitted with the device and the trials were run "blind". Fuel savings were calculated to be 11.4%. The trial was performed between the end of April and the end of October and was compared with base data obtained over the 38 weeks before the trial began (mainly during winter months). This seasonal factor alone could produce a variation in fuel consumption of 5-10% and may account for virtually all the perceived savings.

The Dangers of Poor Quality Data

A company with a fleet of 150 vehicles initiated a 10-week trial of a fuel saving device using two sets of six vehicles. One group of six vehicles was based at one depot and the second group at another. The company then sent figures to the supplier for analysis. These values were found to be unsound. Missing fill-ups were not accounted for, consumption figures were not robust and averages of averages had been used instead of true values of fuel used and distance travelled. Also the drivers at the trial depots were fully aware of the trial, so the saving of 11.8% attributed to the fuel-saving device could have been influenced by driver behaviour. When the data was cleaned up the results actually showed an increase in fuel consumption of 3.1%.

4.2 Do Your Homework

'In-fleet Trials of Fuel Saving Interventions for Trucks' is aimed at operators who want to test out the claims made by suppliers of fuel additives and other products. The guide describes methods for measuring the fuel consumption of commercial vehicles and benefits this can bring. If you are serious about testing devices, this guide will prove a valuable tool. This can be downloaded from **www.freightbestpractice.org.uk** or ordered from the Hotline on **0845 877 0 877**.

4.3 Why Use Laboratory Tests?

The main advantage of laboratory testing is that many variables are eliminated, (e.g. driver behaviour and weather or road conditions.)

The only way in which a product affecting only fuel or engine systems can produce a change in vehicle fuel consumption is by changing the efficiency of the engine as a converter of fuel into energy. Using an engine dynamometer is the most accurate and repeatable method of testing this efficiency. If there is no significant benefit shown in a dynamometer test there is no point in proceeding to testing on vehicles. If a dynamometer test gives favourable results, it may still be necessary to carry out in-service testing on vehicles to estimate how much of this gain can be realised. Engine dynamometer testing is designed to filter out ineffective products before time-consuming in-service testing is started.

Test laboratories can advise on the most suitable testing method for particular products and operations. Some laboratories have developed their own test profiles for specific operations, including London buses!

The limitations and drawbacks associated with laboratory testing of fuel saving devices are:

- They can be extremely expensive, so suppliers may be tempted to cut corners
- Certain products such as lubricant additives and engine cleansing agents or devices may need very long periods of testing, increasing costs
- Product suppliers are selective in their use of published laboratory reports. Some laboratories are so concerned about this that they may refuse to test products except for established customers
- The effect of the product or device will vary, depending on type, age and condition of an engine or vehicle
- The product may work well over a limited testing period but could cause excessive wear or damage to the engine over time
- An improvement of at least 3% on an engine test bed is needed to produce any potential savings on a vehicle in service

Questions to Ask Manufacturers about Laboratory Test Results

Can I read the whole report, including any limitations or adverse comments?
It is misleading to edit reports by selecting favourable sections.

Can I talk directly to the laboratory about the tests and the report?
A negative answer may indicate that the laboratory will dispute the marketing claims.

Was the testing comprehensive?
Some devices may show an improvement in fuel consumption, but at the expense of power output or increased emissions.

How up-to-date is the report?
Test cycle design and engine technology have improved rapidly in recent years. Products suited to carburettor cars, IDI diesels or pre-Euro I engines could harm more modern designs.

What are the standards of comparison?
An example: the benefits shown when fuel additives are added to 'basic' fuel may not be replicated when the same products are added to good quality branded fuel.

What protocols and controls were used in the test programme?
Ideally, the tests should consist of bracketed sets ('with' and 'without' the product), using a standard engine to demonstrate that the difference is entirely due to the product.

Were enough tests carried out and are they all reported?
Three sets of bracketed tests are the absolute minimum. More tests give higher confidence levels.

Does the product rely on a running-in or clean-up period? If so, where was the mileage done and by whom?
If this mileage was not done by the testing organisation, other adjustments may have been made, e.g. retuning.

How representative of my fleet was the vehicle or engine tested?
Look for similar model type, age etc.

How representative were the test cycles of the conditions under which my fleet operates?
Look for the same mix of urban, extra-urban, stop/start etc.

Are the test results statistically significant?
Look for a fuel saving of more than 3% or a reduction in pollutants of more than 10%.

If the product claims to alter the properties of the fuel, how was fuel consumption measured?
Was it by gravimetric, flow meter or carbon balance test? The carbon balance test alone is not sufficient for fuel additives that alter the fuel's chemical composition.

Were 'no-harm' and wear tests carried out? If so, what were the results?
This will help to reassure you that catastrophic vehicle failure is less likely and that warranties are likely to still be valid.

Was the effect on power measured?
Ensure that any possible fuel saving has not been at the expense of vehicle power or driveability.

What was the effect on emissions?
Check that emissions did not increase and that the warranty specifications are still valid.

Is the test laboratory an engine emissions specialist?
Specialist equipment and expertise is needed to assess fuel economy and similar devices.

Is the laboratory part of a reputable UK organisation?
Contact the Society of Operation Engineers (see Contact Points, Section 5) to verify the laboratory's credentials.

Were sufficient tests carried out?
Some tests, particularly the diesel smoke test, can vary significantly, showing better results as the test is repeated.

4.4 Vehicle Tests

Advantages of test procedures on private, purpose-built tracks away from public roads include:

- Freedom from interference by other road users
- Drivers' hours and tachograph rules, national speed limits and other regulatory restrictions do not apply
- Availability of special facilities, such as a circuit with banked corners allowing constant speed running for extended periods
- Administrative and technical back-up
- Known track lengths
- Drivers can stay in contact with test control using cheap short-range radios
- The influence of individual driving styles can be minimised
- Local weather information such as wind speed and direction, air temperature and relative humidity, is readily available

One of the best-known standard track tests is the "Type 1" test, as described in the 'Fuel Consumption Evaluation Guide'. This procedure is used at the British Transport Advisory Committee (BTAC) technical trials held annually at the MIRA (formerly Motor Industry Research Association) proving ground near Nuneaton, Warwickshire since 1979.

4.5 Road Testing

Magazines often include road tests in their reports on new vehicles. Fuel consumption results from such tests should be considered only as a rough guide when comparing one vehicle type with another as these road tests are subject to many variables. The only reliable way of comparing two vehicles is to run them simultaneously, preferably in a track test.

Test results published by the trade press should be used for information purposes only. They should be regarded as indicative and should be confirmed using more rigorous testing techniques.

Guidance on running road tests is included in the 'In-fleet Trials of Fuel Saving Interventions for Trucks'. Other sources of information on road testing procedures are listed in the contact points, on page 13.

4.6 In-service Testing

- Your drivers should all be trained in fuel efficient techniques before embarking upon any sort of other testing
- If the results of the tests are to be collected in the same way as normal fuel consumption data, ensure that the procedures in place are sound and rigorous
- Ensure that a proper assessment of the device to be tested has been made. This should include an estimated payback period, a thorough assessment of all possible side-effects, including mechanical damage or increased wear, and warranty implications
- Ensure if possible that the device has been laboratory, track or road tested to confirm that there is a worthwhile potential for savings in fleet use
- Carefully design the test procedure
- Once the details of the test have been finalised, ensure that they are communicated in writing to everyone involved
- Run the test for the set period, monitoring the data and calculating the results as they come in. Any anomalies should be identified and corrected early on rather than waiting until the complete set of results has been collected

See the Freight Best Practice Guide

Fuel Management Guide for more information on monitoring and interpreting fuel consumption data.

A full list of the **FREE Freight Best Practice** publications can be obtained from the Hotline **0845 877 0 877** or by visiting the website at **www.freightbestpractice.org.uk**

5 Contact Points

Trade associations, professional associations and consumer bodies sometimes can provide members or subscribers with information on fuel saving devices.

Association des Constructeurs Europeéns d'Automobiles
Rue du Noyer 211 B-1000, Brussels, Belgium
Tel: +32 2 7325550
www.acea.be

American Petroleum Institute
1220 L Street, NW Washington DC, 20005 – 4070,
USA Tel: +1 202 682 8000
www.api.org

Advertising Standards Authority Limited (ASA) Mid City
71 High Holborn, London, WC1V 6QT
Tel: 020 7 492 2222
www.asa.org.uk

Coordinating European Council for the Development of Performance Tests for Transportation Fuels, Lubricants and other Fluids (CEC)
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Freight Transport Association (FTA)
Hermes House, St John's Road, Tunbridge Wells,
Kent, N4 9UZ
Tel: 01892 526171
www.fta.co.uk

Institution of Mechanical Engineers (IMechE)
1 Birdcage Walk, Westminster, London, SW1H 9JJ
Tel: 020 7 222 7899
www.imeche.org.uk

Intertek Testing Services (ITS)
ETL Semko Division
ITS House, Cleve Road,
Leatherhead, KT22 7SB
Tel: 01372 370900
www etlsemko.com

National Society for Clean Air & Environmental Protection (NSCA)
44 Grand Parade, Brighton, Sussex, BN2 2QA
Tel: 01273 878770
www.nsca.org.uk

Office of Fair Trading (OFT)
Fleetbank House, 2-6 Salisbury Square,
London, EC4Y 8JX
Tel: 020 7 211 8000
www.oft.gov.uk

Road Haulage Association (RHA)
Roadway House, 35 Monument Hill, Weybridge,
Surrey, KT13 8RN
Tel: 01932 841515
www.rha.net

Society of Automotive Engineers
400 Commonwealth Drive, Warrendale, Pennsylvania,
15096-0001 USA
Tel: +1 724 776 4841
www.sae.org

Society of Motor Manufacturers and Traders (SMMT)
Forbes House, Halkin Street, London, SW1X 7DS
Tel: 020 7 235 7000
www.smmt.co.uk

Society of Operations Engineers (SOE)
22 Greencoat Place, London, SW1P 1PR
Tel: 020 7 630 1111
www.soe.org.uk

Freight Best Practice publications, including those listed below, can be obtained FREE of charge by calling the **Hotline** on **0845 877 0 877** or by downloading them from the website **www.freightbestpractice.org.uk**

Saving Fuel

Fuel Management Guide

This is the definitive guide to improving the fuel performance of your fleet. It gives step-by-step explanations of the key elements of fuel management, how to measure performance and how to implement an effective improvement programme.

Operational Efficiency

Operational Efficiency Brings Savings for Yearsley

This Case Study shows how back-loading, driver training, routing software and a fuel management programme has significantly improved operational efficiency at Yearsley.

Developing Skills

Proactive Driver Performance Management Keeps Fuel Efficiency on Track

This case study shows how Thorntons implemented a highly effective driver incentive scheme combining in-cab driver monitoring, service delivery levels and accident rates.

Performance Management

Fleet Performance Management Tool

This PC-based spreadsheet tool has been designed to help fleet operators improve their operational efficiency using key performance indicators (KPIs) to measure and manage performance. The KPIs include costs, operational, service, compliance and maintenance.

Equipment and Systems

Concise Guide to Computerised Vehicle Routing and Scheduling (CVRS)

This quick guide shows the latest routing and scheduling software products and developments.

Public Sector

Local Authority Freight Management Guide

This guide aims to improve local authority officers understanding of the nature of freight, leading to the production of high quality and deliverable freight strategies and action plans. It promotes advice and support for policies and aims to enhance local authority delivery performance.

June 2007.

Printed in the UK on paper containing at least 75% recycled fibre.

Saving Fuel