



MOTOR FACTORS

SMARTCHOICE

ISSUE 75 • NOV 24 - JAN 25

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IN THIS ISSUE

IT'S TIME FOR CHANGE WITH BOSCH WIPER BLADES



JACK PAD SET FOR TESLA FROM FEBI BILSTEIN



NEW SEASON, NEW PRODUCTS FROM GRANVILLE



*T&C's - Promotion starts December 2nd, 2024. Receive a free 85g chocolate grab bag when you spend £50, or more, on one invoice during the promotional period, whilst stocks last. Grab bag varieties will vary. We reserve the right to end or withdraw this promotion at any time without notice.

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FERODO®

EXPLORING FERODO'S GARAGE GURUS: A TRAINING EXPERIENCE WORTH CHECKING OUT

We're always excited to dive into new training opportunities within the automotive industry, and recently, we took a closer look at one that's been catching our attention - **Garage Gurus** from Ferodo.

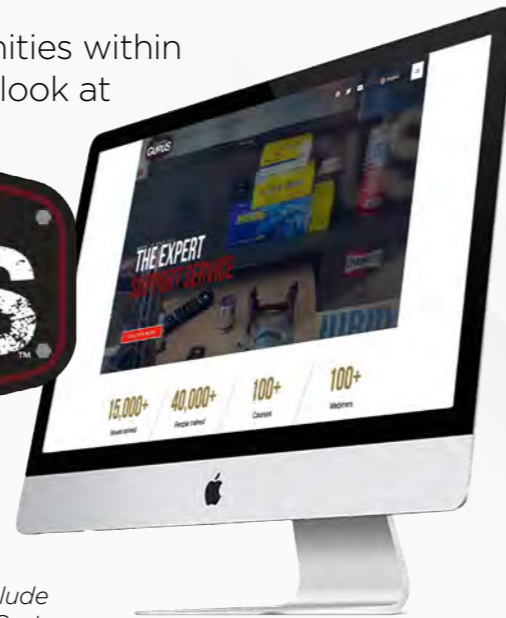
From the go, it's clear that Ferodo has designed a comprehensive training program that caters to technicians of all skill levels. And with ASE-certified support and on-the-road tech assistance, they've really gone all out. But have they succeeded in delivering top-notch training? We definitely think so!

The Garage Gurus website instantly transports you into an immersive training environment covering a wide range of Federal Mogul products. For this review, we zeroed in on one area that's becoming increasingly complex - **braking systems**. As many technicians know, brake installations can sometimes be tricky, leading to wasted workshop hours and, dare we say, frustrated customers eager to get their cars back on the road.

Thankfully, the **Garage Gurus** program tackles these challenges head-on. It offers a step-by-step solution to common fitting issues through a well-structured online training experience. We enjoyed the process! Not something you can often say about training sessions, right?

So, what does Ferodo have to say about their training concept?

"Designed specifically for the auto technician, choose the way to learn that works best for you and your schedule - onsite, online or on-demand. Your go-to source for training, Garage Gurus gives you access to a comprehensive suite of support tools. Get the training and answers you need to advance your career or keep that next repair job on track."



"Courses cover the topics that matter the most to you. Online brake courses include topics like Brake System Inspection and Service, while webinar topics include Brake Service for the 21st Century and Servicing Brake Systems with Vehicle Stability Control (VSC)."

"Workshop courses give you the opportunity to learn directly from a Garage Guru Master Technician at one of the Garage Guru technical support centers. You'll get the hands-on experience you need to solve real-world issues you'll see in the garage. From preparing for the ASE A5 brake test to learning the latest about electronic brake control, there is a workshop course that will help you get to the next level."

Ferodo's program is **comprehensive, crisp, and incredibly user-friendly**, covering everything you need to confidently tackle braking issues. So why wait?

Check out the Garage Gurus courses and register today - your next level of expertise is just a click away!

www.garagegurus.tech



NOW AVAILABLE FUSE+ TECHNOLOGY BRAKE PADS FOR ELECTRIC & HYBRID VEHICLES

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For more information, go to: www.ferodo.com

THE IMPORTANCE OF COIL SPRING MAINTENANCE DURING WINTER



Our Precision, Your Advantage

As the colder months approach, vehicle damage due to potholes becomes a growing concern for UK drivers. According to the RAC, the period from January to March is the worst time for pothole-related breakdowns. Drivers are now one-and-a-half times more likely to experience pothole damage than 15 years ago, with coil spring failure being a typical result.

The Role of Coil Springs

Coil springs play a critical role in vehicle safety, helping to support the car's weight and absorb road shocks. If a coil spring breaks, it can cause the vehicle to sag, become unstable, and affect the driver's control, posing serious safety risks. Sometimes, a broken coil spring might be subtle, but it can also be more noticeable and dangerous. KYB recommends inspecting coil springs every time a vehicle enters the workshop, particularly leading up to, and during the winter months.

Why Coil Springs Fail in Winter

Coil springs are prone to breakage due to several factors that are more prevalent in winter:

- 1. Increased Vehicle Weight:** Modern vehicles, particularly EVs, have become heavier due to added technology and safety features. While coil springs have been made lighter to compensate for this, the additional stress from heavier vehicles can lead to failures, particularly when combined with pothole impacts.
- 2. Extreme Temperatures:** Countries with harsher winters, like the UK, see more frequent coil spring issues than warmer climates like Southern Europe. Cold weather and road salt used in winter accelerate coil spring damage. As debris strikes the spring, it can chip away its protective coating, exposing the metal. Road salt then begins to corrode the bare metal, gradually weakening the spring until a breakage occurs.
- 3. Potholes:** Potholes form when water freezes under the road surface, causing it to crack and weaken. Each impact with a pothole places impact strain on the coil spring, causing tiny cracks to develop. Repeated stress and cold weather make the spring more brittle and prone to failure.

- 4. Grit and Salt:** In winter, roads are treated with grit and salt, which act as corrosive agents. These substances accelerate the deterioration of coil springs by wearing away their protective coating, exposing them to rust, and further weakening them.

KYB's Coil Spring Technology

To protect coil springs from harsh winter conditions, KYB incorporates advanced manufacturing processes. Each KYB coil spring undergoes shot peening, where the surface of the spring is bombarded with small spherical shots to clean and strengthen it. This process can extend the spring's lifespan by up to 10 times. Additionally, KYB applies a zinc phosphate coating, prior to the final top-coat, protecting the springs from corrosion and ensuring they perform optimally even in harsh winter conditions.

Summary

With the increasing number of potholes and the general poor state of UK roads, it's vital to maintain and regularly inspect coil springs to ensure vehicle safety. KYB's advanced coil spring technology provides enhanced protection, helping vehicles withstand the challenges of winter driving.



SCAN HERE TO FIND OUT MORE ABOUT KYB COIL SPRINGS



Plusline, the market-leading European brand of starters, alternators, air conditioner compressors, and condensers, is now available for the first time in the UK.

Built to OE specifications, Plusline alternators are a testament to reliability. They are crafted using high-quality components such as INA pulleys and NSK bearings and undergo rigorous testing on state-of-the-art Motoplat test rigs. This meticulous process ensures an extremely low level of warranty returns, making Plusline starters and alternators a dependable fit and forget option, especially during the demanding winter season.

During colder weather conditions, an alternator must work harder to provide more power to the battery and other components such as heater blowers, headlamps, fog lamps and wipers, etc. Alternators are designed to replenish the energy taken out of the battery during everyday start situations and to provide power for the vehicle's electrical system continuously; they are NOT designed to charge at 100% 24-7 to compensate for a battery requiring replacement. Doing so can result in overheating and premature failure of the alternator's critical internal parts. Additionally, repeated jump starting or poorly connected jump leads can have a detrimental effect on the health of an alternator.



Plusline is the premium aftermarket brand of PSH, Europe's leading supplier of starters and alternators.

It is always good practice on modern vehicles to connect diagnostic equipment after fitting a new alternator to clear any remaining fault codes that may have been logged when the original unit failed. Occasionally, we see a customer fit a brand-new part and think it is faulty because they still see a diagnostic light, this is because the old fault code is still present.

In the case of a starter motor, as the nights and mornings get colder, they must work harder than usual because the engine oil may become thicker at lower temperatures. Also, during cold weather spells, low voltage caused by an underperforming battery can be an issue. This problem can encourage sparking inside the starter motor solenoid contacts, which can occasionally cause them to weld shut, holding the starter in mesh with the flywheel and forcing it to permanently turn while the engine is running and causing it to burn out. This can also cause damage to other electrical components and, in some cases, even result in an engine fire.

The great news is that Plusline, through PSH, also offers bespoke training programmes tailored to technicians. This commitment to education empowers workshops to handle Plusline products with confidence. In addition, our highly experienced technical team is always on hand to support garages with any queries they may have, ensuring they always have the necessary support and guidance.

For Plusline rotating electrics, ring us today.

CARWOOD[®]

GET TO GRIPS WITH LOOSE SHAFT NUTS IN YOUR TURBOCHARGER REPAIRS

OE-approved remanufacturers like Carwood, use special tools and procedures to torque tighten the shaft nut to the vehicle manufacturer's exacting specification. So, if it becomes loose or spins off altogether, it is almost certainly due to another issue on the vehicle.



What is a loose shaft nut?

The shaft nut, locknut or impeller locknut, secures the shaft assembly. In most cases it has a left-handed thread – the opposite direction to the rotation of the shaft – so under normal conditions, the nut should tighten. However, if the rotor seizes, or there is any kind of resistance, inertia will cause the compressor wheel to continue spinning on the shaft and undo the nut, which can then be sucked into the compressor wheel. At speeds still over 50,000 rpm, this can result in catastrophic damage within seconds of starting.

What causes loose shaft nuts?

- overspeeding causes the compressor wheel to expand outwards, but also become shorter - this eases the tension on the shaft, and the shaft nut spins off
- worn or damaged bearings can cause the compressor wheel to rub up against the housing, loosening the shaft nut
- foreign object impact damage to the turbine and/or compressor wheel can result in an unbalanced turbo shaft, causing wheel to housing contact and potentially the locknut to work loose

- restrictions in the oil feed pipe at full boost can cause the bearing system to lock against the shaft, which can cause the shaft to seize - as well as potentially causing the shaft to snap, the inertia can undo the nut

What are the signs of a loose shaft nut?

- unusual turbo noise whilst driving
- loss of power and performance
- chipping or pitting to the leading edge of the compressor wheel
- impact marks around the inside of the air intake bore
- fractured compressor blades and/or completely burst compressor wheel



damage to compressor wheel blade due to loose nut

How to prevent turbo failure due to a loose shaft nut?

- follow the manufacturer's recommended service
- change the oil and fit a new oil filter when replacing the turbo
- use the correct grade and quantity of oil
- follow best-practice installation guidelines
- ensure the entire air induction system is clean and object free – fit new air filters and replace other components, as necessary
- fit new oil feed pipes when replacing or refitting the turbo



How to resolve turbo failure due to a loose shaft nut?

- remove the turbo and locate the shaft nut and any broken wheel blades
- inspect and clean the entire oil supply and return system for broken wheel blades - this may require the removal of the sump, oil pump and internal oil feed and return lines. Replace components where required
- remove the intercooler and check for fragments of broken wheel blades - clean or replace, as appropriate

Remember, always diagnose and fix what caused the original unit to fail, before fitting a new turbo, otherwise the new unit may fail too!

For more best-practice turbo advice, call Carwood's technical hotline on 01623 867996

Loss Of Direction

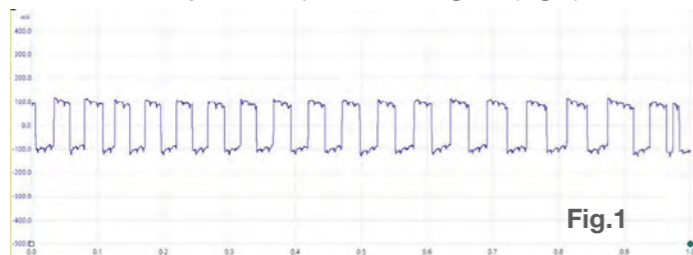
Diagnosing a Wheel Bearing Fault in a Volkswagen Golf V



Many control units share information provided by the sensors built into the vehicle's infrastructure to give important data feedback that affects vehicle emissions, performance, comfort, active and passive safety and much more. When a vehicle's battery is replaced, some sensor and actuator resets may be required. The common driver comfort items, such as radio, clock and one-touch window settings, are mostly universal. However, many other items that affect the braking, steering and navigation systems are usually vehicle specific and rely on all systems being fully functional. If any part of the system is faulty, a reset adjustment may not be possible. This was the case with the featured vehicle, a Volkswagen Golf V, which recently had a battery replacement. The assisted steering, electronic power control (EPC) and electronic stability program (ESP) warning lamps were all illuminated.

The vehicle's stability control program is an integrated part of the brake control unit. It processes and acts on data shared by many other control units during the operation of steering, braking and acceleration to control the vehicle. The steering wheel angle sensor had already been attempted to be reset with a diagnostic tool, but had been unable to do so, leaving the warning lamps illuminated and the stability safety system non-functioning. This required further investigation.

First, a global fault code check of all systems revealed a steering wheel angle sensor fault in the electromechanical steering control unit. However, on checking the data within the brake and steering control units, the steering wheel angle sensor appeared to be working correctly, but it was unable to reset to a known base position. The conclusion was that there must be another fault in the system that was causing the fault. After a short road test, it was revealed that the left rear wheel speed sensor was giving a reading at a different speed than that of the other wheels. With the vehicle returned to the workshop, an oscilloscope was connected to the left rear wheel speed sensor to check the integrity of the signal in order to see if this was a simple case of a faulty sensor. On checking the signal, there was an inconsistency in the square wave signal. (Fig.1)



The wheel speed sensor is mounted in the hub at right angles to the magnetised impulse reluctor ring, which is mounted on the wheel bearing assembly. The active wheel speed sensor makes use of the magnetic resistive effect; a magnet in the sensor produces a magnetic field with the lines of magnetic flux running at right angles to the sensor layer.

Deflection of the lines by the impulse wheel causes changes in resistance in the thin ferromagnetic layer of the sensor element. (Fig.2)



The sensor element converts the changes in resistance into voltages. The square wave voltage detected by the brake control unit is a measurement of individual wheel speed which is used to derive the acceleration and deceleration of wheel speed and is definitive for brake control.

A visual inspection of the sensor was required in order to see if there were any mechanical issues which were causing the inconsistency in the signal. This involved removing the wheel, brake disc, pads and caliper. Then, it was required to remove the wheel hub with the integrated reluctor ring. With the wheel bearing assembly removed from the stub axle, it became obvious what had been causing the issue. Corrosion between the ferrous metal of the wheel hub and the magnetic reluctor ring had caused distortion to the reluctor, causing cracking of the magnetic ring and a narrowing of the air gap between the reluctor and the wheel speed sensor. This was the primary fault with the vehicle. The febi wheel bearing kit (23320) was required as the replacement part, along with a wheel speed sensor (23810), because it had sustained some light damage from the distorted reluctor ring.

The new bearing assembly and the wheel speed sensor were fitted to the car, along with the refitting of the brake assembly and wheel. Once this was completed, the steering wheel angle sensor reset could be carried out. This consisted of road testing the vehicle with an assistant to operate the diagnostic tool. This involved driving straight at no less than 20 km/h, turning the steering wheel at least 15° to the left and then to the right and then stopping the vehicle. Then, the steering was turned completely to the left and was held for at least 3 seconds, then back to the centre. This was followed by the turning of steering all the way to the right and then being held for 3 seconds and back to the centre again. Once this procedure was carried out, the sensor was reset and all systems were fully functioning again.



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Strut Top Mountings

An Overview



The Macpherson strut is made up of a number of components to form a compact suspension unit. This is a very popular choice for vehicle manufacturers due to its simplicity and low manufacturing cost.

The main part of this suspension unit is a long telescopic tube, which incorporates a damper. This is usually fitted with a piston protector to keep out road grit and protect the seals. A coil spring is located between two retaining cups. This is held in place under compression by a retaining nut, which is secured to the top of the damper piston.

The unit is rigidly connected to the stub axle or hub assembly and is pivoted at the top, usually by a top bearing, to accommodate steering movement. The bearing forms part of the strut top mounting assembly, which acts as an insulator as well as a fixing point between the suspension unit and the vehicles body. (Fig 1)



FUNCTIONALITY OF A STRUT TOP MOUNTING

The suspension strut top mounting is a bonded rubber bush, which is mounted to the top of the damper and fixed to the vehicles chassis. This is an integral part of the suspension strut assembly. Strut mountings can also incorporate a bearing or a bearing plate that allows the strut to turn with the steered wheels.

The strut mounting acts as a coupling to the spring and shock absorber, connecting it to the body. The damping force is absorbed separately within the mounting, which in turn insulates the vehicles body from suspension and road noise.

In the lateral direction, the mounting is designed to be stiffer. This positively influences the driving dynamics, and the steering response, which greatly reduces noise, vibration and harshness from the driveline and suspension. This ensures maximum driver and passenger comfort. To do this, the strut top mounting has to ensure low-friction and distortion-free movement of the shock absorber spring during steering and deflection. This enables the road spring to operate without selfaligning torque.

The strut mounting also has to locate the shock-absorber spring and form a support surface, for full deflection of the shock absorber. All this has to be achieved in a compact design that has been optimised for limited mounting space and supplied as a sealed unit. It also needs to be maintenance free.

STRUT TOP REPLACEMENT

During the life of this suspension unit, the damper and spring have to expand and contract millions of times, enduring the stress of the road surfaces that the vehicle is driven on.

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This includes damaged road surfaces, which bring extra stress to the unit.

The strut top mounting bearing often falls apart or seizes, resulting in a creaking or grinding noise from the suspension. This can lead to the bearing tearing the rubber apart in the mounting. (Fig 2)



The rubber itself can deteriorate with age, leading to reduced driving comfort due to noise development. This results in tight steering or excess play in the steering, unstable handling, and reduced driving and braking safety. This allows water to enter and provides for unnaturally high wear. The consequence: too much play in the joint, which leads to the aforementioned noises.

WHY febi?

The strength of a strut top mounting comes from the properties of the elastomeric material used and metal reinforcement within it. This provides the flexibility and stiffness that is required. febi strut top mountings are made from OE grade rubber and follow the precise specifications of the vehicle manufacturer, ensuring optimum performance. When replacing this part, rely on tested OE matching quality spare parts from febi bilstein. The entire range of suspension strut top mountings can be found at: www.partsfinder.bilsteingroup.com

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**BRRRING
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VEHICLE
ELECTRONICS

**HOT PROFIT
OPPORTUNITY**



Handle the heat this winter with EGTs

No engine works harder during winter than a diesel engine. It might feel like a technician only needs to worry about the effects of cold snaps, but diesel engines need to be protected from challenging cold temperatures and harmful high temperatures alike during winter. Especially when some of the presenting symptoms for cold start troubles can be very similar to high exhaust gas temperature damage.

The monitoring of exhaust gas temperatures is vital because many critical components sit in the line of fire. Temperatures are also used purposefully in a diesel vehicle to burn off particulates and manage emissions, which

is another reason to make sure the vehicle is operating within the desired parameters. Exhaust Gas Temperature (EGT) sensors serve the electronic control unit (ECU) with temperature data for turbochargers, catalytic converters, diesel particle filters and nitrogen oxide reduction systems. They are used to monitor the optimum operating temperature range and provide an early warning to protect components from temperature overload.

Symptoms of a faulty EGT sensor can include:

- Unsuccessful DPF regeneration
- Poor fuel efficiency
- Loss of performance

If an EGT sensor is faulty, the check engine light will be triggered by the ECU and technicians should follow their diagnostic processes to investigate root cause and repair. Having the best parts for the job is crucial and NTK's EGT sensors, from Niterra UK Ltd, are a popular choice for both independent garages and original equipment fitment.

NTK EGT sensors provide extreme resilience against heat and vibrations, have high measuring accuracy, fast light-off times and an exceptionally wide measuring range. The range is also frequently bolstered by new to range launches which ensure coverage for the most popular applications.

To discover more about NTK products and services please visit www.ngkntk.com/uk



made for mechanics

Why should mechanics choose SAE 0W grade engine oils?

What are SAE 0W grades?

Simply put, SAE 0W grade lubricants are a class of synthetic engine oils that were introduced to address specific challenges related to engine performance, fuel efficiency, and environmental concerns relative to extreme temperature conditions.

Why choose SAE 0W grade engine oils?

SAE 0W grade engine oils are designed to provide easy lubricant flow at low temperatures, which provides rapid lubrication at startup which reduces engine wear.

By creating less engine friction, there is an opportunity to benefit from fuel efficiency by protecting the engine and allowing it to run smoothly.

When looking at engine oils from an environmental lens, the improvements stemming from the cold start performance and efficient engine operations allow for lower emissions contribution and reduced environmental impact.

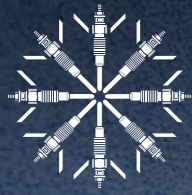
Comma Product	OEM approval
ECO-FE Plus SAE 0W-30	Verified by Jaguar Land Rover to meet ST-JLR.03.5007
ECO-LLP SAE 0W-20	Approved under VW standard 508 00 and VW standard VW 509 00
ECO-Z SAE 0W-20	MB-Approval 229.72
ECO-FO SAE 0W-20	Approved by OPEL Vauxhall to meet OV 040 1547 - A20; verified by Jaguar Land Rover to meet the requirements of STJLR.03.5006
ECO-M SAE 0W-20	Verified by Jaguar Land Rover to meet the requirements of STJLR.51.5122
ECO-V SAE 0W-20	Officially approved by Volvo to meet VCC RBS0-2AE
VOLTECH SAE 0W-30	Approved by Volvo under 95200377 standard



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**BRRRING
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IGNITION
PARTS

**HOT PROFIT
OPPORTUNITY**



Cold winter weather can present hot profit opportunities for proactive independent workshops when dealing with their customers' diesel cars.

When diesel cars' glow plugs operate at peak efficiency, they are vital for starting at low temperatures and they make combustion cleaner to help comply with environmental regulations.

NGK glow plugs, from Niterra UK Ltd, are renowned for their fast start, reliability, and ability to perform in cold weather conditions. They are essential for maintaining optimum emissions and helping to prevent damage to related components.

The NGK range provides more than 75 percent coverage of the 17.3 million diesel car parc in the UK, as well as consistent new-to-range launches to ensure popular and new models join the coverage.

NGK glow plugs:

- Start diesel engines quickly and smoothly
- Offer an excellent post-glow function
- Have a long service life

In many cases, NGK glow plugs will have been the OE fitment of choice, meaning workshops can invariably fit the bespoke part for their customers' cars.

Vehicle manufacturers do not specify mandatory change intervals for glow plugs, so it is crucial for independent garages to spot and report signs of glow plug deterioration and educate drivers on

the need to get them regularly checked. Drivers shouldn't need to wait for a dashboard warning to get their glow plugs checked and should be encouraged to keep their eyes peeled for tell-tale signs:

- Difficulty starting
- Engine misfiring
- Rough idling

Workshops can deliver exceptional customer service and build lasting relationships with satisfied customers by focusing on glow plug maintenance - providing expert advice and a range of useful tips on cold weather driving.

NGK glow plug selection is simple via the Niterra Part Finder at www.ngkntk.com/uk



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TIMING CHAIN KITS

RENAULT H4B 400, H5F, H4B 408/412 ENGINES

DACIA | MERCEDES-BENZ | NISSAN | RENAULT | SMART



H4B 400

Engine Type: 0.9L 3-cylinder turbocharged.

Displacement: 898cc.

Power Output: 66-90 hp, depending on tuning.

Applications: Found in smaller Renault vehicles like the Renault Clio, Twingo, and Dacia models.

Technology: It features a turbocharger for increased efficiency and power from a small displacement.

TC7301VFK

H5F

Engine Type: 1.2L or 1.3L 4-cylinder turbocharged (depending on sub-variant).

Displacement: 1,197cc/1,333cc.

Power Output: 115-160 hp (H5F 1.2L) and 140-160 hp (H5Ft 1.3L).

Applications: Renault Captur, Kadjar, and Nissan Qashqai.

Technology: Better power output and efficiency, using technologies like direct fuel injection and turbocharging.

TC7304VFK

H4B 408/412

Engine Type: 0.9L 3-cylinder turbocharged.

Displacement: 898cc.

Power Output: 66-90 hp.

Applications: Slightly different models or markets with minor technical changes in tuning or emission standards.

Technology: Compact size and turbo efficiency but may include small optimizations for performance or emissions.

TC7305VFK

TC7301FK
INSTALLATION
GUIDE



KEY DIFFERENCES:

H4B 400 vs. H4B 408/412: These are variations of the same 0.9L engine with slight differences in tuning or emissions, often used in different markets or specific models.

H5F: This is a more powerful and larger 4-cylinder engine, compared to the smaller 3-cylinder H4B series, offering better performance for larger vehicles.

THERMAL MANAGEMENT EXPERTISE

Every vehicle with a combustion engine, including hybrids, needs effective thermal control of the engine, not only for cooling to prevent overheating, but also to achieve the quickest possible temperature build up to reach and then maintain it at the optimum level.



Nissens Automotive (Nissens) is a thermal management expert with more than 100 years of experience in design and manufacture of highly comprehensive and competitive engine cooling system replacement parts, alongside its climate system and efficiency & emissions components. These are all manufactured to Genuine Nissens Quality standards to provide workshops with premium grade components and an aftermarket solution they can depend on.

The Nissens engine cooling parts range is characterised by excellent fit, easy installation and operation at optimal performance levels, securing long, trouble free operation.

RADIATOR - THE KEY HEAT EXCHANGER

Central in the cooling system is the radiator, as ultimately, it is the component that protects the engine from excessive heat and ensures its optimal performance. Therefore, only a replacement product of the correct design and highest quality can undertake this role effectively for the long term.

To address this need, Nissens radiators are produced with sturdy, durable and high performance core construction, with advanced aluminium brazing technology.

Among several design features that ensure their suitability are cores equipped with double folded fins that not only provide reinforcement against mechanical damage, but also increase the total heat exchanging surface for more efficient cooling.

EASY INSTALLATION

Another considerable benefit for workshops is that Nissens radiators are delivered with everything that is needed for easy installation. So, depending on the application, any caps, O-rings, nuts, clamps, plugs, gaskets, circlips, bolts, screws, hose clips, washers, etc., that are required, are supplied in the box.

WIDE RANGING COVERAGE

The constantly growing Nissens radiator range, currently consists of 3,000 part numbers that cover more than 12,000 original equipment (OE) references, providing 93% and 76% of the European conventional and hybrid/electric vehicle parc, respectively.

COMPREHENSIVE SOLUTION

In addition to radiators, the Nissens engine cooling programme also encompasses engine cooling fans, expansion tanks, oil coolers, water pumps and coolant sensors. These products total more than 2,700 part numbers, covering 14,000 OE references.

ENGINE COOLING EXPERTISE FROM



Management of the temperatures within the engine and gearbox are key to the performance and efficiency and AVA provides workshops with the Clever Choice for their replacement parts needs.

Oil coolers are an often overlooked part of the cooling system, but keeping the engine's oil at a stable, defined temperature is as important as managing the temperature of the engine and gearbox, as consistent internal lubrication is critical.

AVA oil coolers are now available as complete assemblies, including both housing and oil filters. This plug-and-play solution simplifies installation, making it easier, faster, and less risky. Each component, as well as the entire assembly, undergoes rigorous testing to ensure optimal performance and durability.

For more information regarding the AVA engine cooling range, visit: ava-cooling.com/en/company.html

GS YUASA'S ESSENTIAL TIPS FOR MAXIMISING BATTERY PERFORMANCE IN WINTER

As the cold weather sets in, automotive workshops face one of their busiest and most challenging seasons of the year.



- Inspect for damage, clean any corrosion from the terminals and ensure the connections are secure. Corrosion can cause increased resistance, reducing the battery's effectiveness.

Charging and maintaining the battery

Winter can be harsh on a vehicle's battery, so maintaining state of charge is essential. Advise customers on the importance of regular driving or using a smart charger from Yuasa's YCX range if the vehicle is not in frequent use. For workshops, offering a pre-winter battery charging service can be an excellent way to prevent issues before they arise.

High-quality battery replacements

When a replacement is necessary, choosing the right brand is critical. GS Yuasa batteries stand out for their durability, advanced technology, and superior performance in cold weather conditions.

Educating customers on the importance of investing in a high-quality battery can save them from future headaches. Explain how GS Yuasa's batteries are specifically designed to handle the increased demands of winter driving, ensuring that their vehicle starts reliably, even on the coldest mornings.

Winter battery care

Part of providing excellent service is educating customers on how they can care for their battery throughout the winter, so it's also worth advising them to:

- Regularly use the vehicle for journeys of at least five to six miles to keep the battery charged
- Turn off unnecessary accessories such as heaters and lights before starting the vehicle to reduce the load on the battery
- Park in a garage or sheltered area to help protect the battery from extreme cold.

By following this advice, automotive technicians can ensure that their customers' vehicles are prepared for winter, reducing the risk of battery failures and improving overall vehicle reliability. Offering GS Yuasa batteries as part of your winter preparation service not only provides your customers with a premium product, but also reinforces your workshop's reputation for quality and reliability. This winter, make sure you're offering the best with GS Yuasa.

Winter is notorious for its impact on vehicle batteries, so ensuring that your customers' vehicles are winter-ready is paramount. This is why the superior quality and performance of GS Yuasa batteries makes them the preferred choice for year-round reliability.

Winter conditions can significantly reduce battery performance. In fact, at 0°C a battery will lose about 30% of its cranking power compared to a temperature of 20°C. The demand on the electrical system also increases during winter due to the use of heaters, defrosters and other accessories, adding further strain on the battery. Without proper preparation, this can lead to a spike in battery failures, leaving your customers stranded.

Battery inspection

The first step in preparing a vehicle for winter is a thorough battery inspection. Technicians should:

- Check the battery's age, as older batteries are more prone to failure, especially in winter. It's advisable to replace with an original equipment option like GS Yuasa, which offers superior cold cranking amps (CCA), and always replace like for like, for example AGM for AGM, or EFB for EFB or AGM.
- Test the battery's voltage and state of health using tools like GS Yuasa's GYT050 or GYT250 battery testers.
- A fully charged battery should read approximately 12.7 Volts. If the voltage is low, charge the battery but if the state of health is poor consider a replacement as soon as possible. (The test result message will indicate if replacement is necessary).

Invented for life



It's Time for Change - Proactive Wiper Blade Replacement with Bosch.

Many drivers overlook the importance of their wiper blades, often waiting until they are completely worn out before seeking a replacement.

Bosch highlights that repair workshops play a key role in recommending timely wiper blade replacements and should adhere to the manufacturer's guidelines to ensure maximum safety and performance.

According to most manufacturers, wiper blades should be replaced every 6 to 12 months, depending on factors like climate and usage. However, drivers nearly always overlook this, only thinking about new blades once they start seeing issues, such as streaking or poor wiping performance. This reactive approach can compromise safety and even lead to costly windscreen damage.

Prevention is far better than cure, and garages can help drivers avoid issues and unnecessary repairs by educating customers about the benefits of timely replacement and offering wiper blade checks as part of routine maintenance services.

When recommending replacements, Bosch wiper blades are a top choice for their durability and performance. Bosch's advanced technology ensures consistent pressure across

the windshield, delivering a smooth, clean wipe.

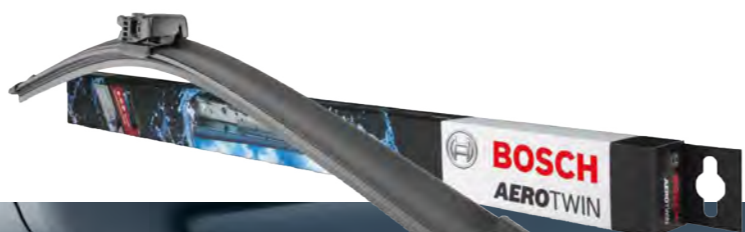
By recommending Bosch, garages can offer customers peace of mind, knowing they're installing blades designed for durability and effectiveness in all weather conditions. They are easy to fit, reducing service time during routine vehicle checks.

Offering Bosch wiper blades as a replacement ensures customers receive a durable, high-quality product that performs well in all weather conditions.

At the next service, a simple wiper blade inspection can make a big difference in vehicle safety, ensuring drivers have clear vision, come rain or shine.

Ring us today and ask for Bosch blades.

boschaftermarket.co.uk



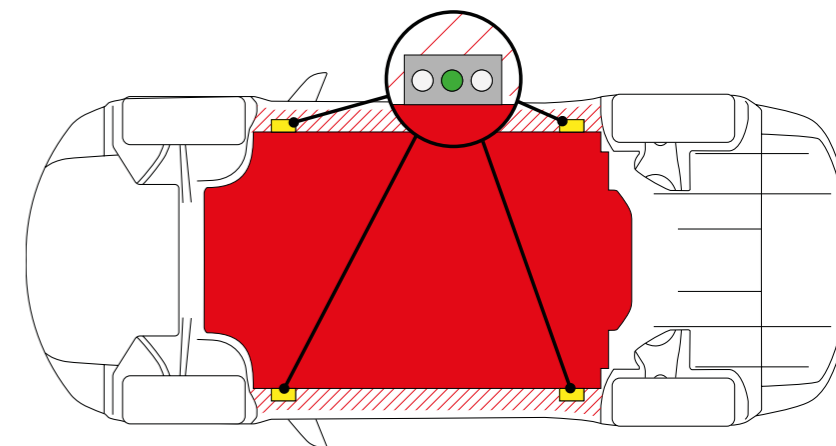
Jack Pad Set for Tesla

febi Adaptor Set 173025



When performing maintenance on the Tesla 3, S & X model (which requires the vehicle to be raised from the ground), it is essential that the vehicle is lifted correctly in order to avoid any damage to the high voltage battery that is located under the car.

All of these Tesla models have four dedicated jacking points, which require the use of febi adaptor set 173025 to fit into the locating points designed for this purpose. These can be used with a hydraulic jack or vehicle lift in order to raise the vehicle safely and efficiently.



Model S & X Jacking Procedure

1. Position the car centrally between the lift posts.
2. To prevent damage when jacking or lifting the vehicle, you must activate Jack Mode to disable the self-levelling air suspension. Use the touchscreen to set the suspension as follows:
 - Touch Controls > Suspension
 - Press the brake pedal and then touch Very High to maximise the height of the suspension
 - Touch Controls > Service > Jack Mode (to disable self-levelling)
3. When Jack Mode is active, an indicator light is displayed on the instrument panel, along with a message telling you that active suspension is disabled. To deactivate this, touch

Jack Mode again. Alternatively, Jack Mode automatically cancels when the car is driven over 4.5 mph (7 km/h).

4. Close the falcon wing doors (Model X only).
5. Locate the dedicated jacking points on the vehicle (illustrated in yellow in the diagram above). Ensure all points are free from debris and insert adaptor 173025 in the central location (as marked in green). Position the lift arm pads under the adaptor to avoid damaging the high voltage battery area (highlighted in red).
6. Check and adjust the height and position of the lift arm pads to ensure they are correctly located.
7. With assistance, raise the lift, ensuring that the lift arm pads remain in their correct positions.

Model 3 Jacking Procedure

1. Position the vehicle centrally between the lift posts.
2. Locate the dedicated jacking points on the vehicle (illustrated in yellow). Ensure all points are free from debris and insert adaptor 173025 (as marked in green). Position the lift arm pads under the adaptor to avoid damaging the high voltage battery area (highlighted in red).
3. Check and adjust the height and position of the lift arm pads to ensure they are correctly located.
4. With assistance, raise the lift, ensuring the lift arm pads remain in their correct positions.

Note: Never raise the vehicle with the charging cable connected, even if charging is not in progress. An incorrectly supported vehicle should also never be worked on.

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www.febi.com



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SCHAEFFLER
REXPERT



OVAL PARTS DOING THE ROUNDS

WHY ECCENTRIC SPROCKETS ARE HERE TO STAY

Many independent mechanics are not yet aware of some major new technical product advances that vehicle manufacturers have introduced in the timing belt drive systems of a variety of engine applications.

These latest developments are 'oval' crankshaft sprockets and 'tri-oval' camshaft sprockets. The crankshaft sprockets are fitted to a variety of engine/vehicle combinations produced by VAG, PSA and Ford, including petrol and diesel applications. Before we explain their purpose and why they are important, let's look at how you can identify them.

For the VAG components, you'd be hard pushed to see any difference between a round and oval sprocket if you had them both on a table in front of you. However, if you roll them across the table, it soon becomes clear that strange forces are at work here! You will instantly see that the oval sprocket's irregular shape affects how it rolls, culminating in a rocking back and forth motion as it comes to a stop.

Also, if you look at the writing on a VAG crankshaft sprocket (not PSA or Ford) and see the words 'SmartSprocket' and the name Litens, then you are looking at an oval sprocket. Like INA, Litens is an OE timing system component manufacturer, and as they hold the patent to the designs, we include their products inside our belt kits. The traditional round unit will just have a VAG logo and part number (see pic). Another important difference is that two separate locking tools are used, one for oval 'smart' sprockets and another for the traditional round sprocket designs.

So, what is the purpose of an oval sprocket? Well, the increasing pressures associated with High Pressure Fuel Pumps (which can be up to 2,700 Bar!), have a direct effect on the timing belt, which drives the HPFP. As the pressure builds in the rail, the pump tries to slow the camshaft down slightly, at the same time as the engine is going through its firing cycle. This change in speed creates an amplitude in the belt drive, which is then transmitted around the entire system as vibration.

However, providing the exact timing belt change procedure is followed to the letter, an oval crankshaft sprocket introduces a periodic timed 'excitation' into the belt drive to basically cancel out the amplitude, therefore removing the vibration.

It's a similar story for 'tri-oval' camshaft sprockets, which remove vibration by utilising three ovals 120° apart. As the valves open they create a vibration which worsens with speed, which the three ovals cancel out. Branding is the same as for VAG products, with the words 'SmartSprocket' and 'Litens' featuring on 'tri-oval' sprockets.

Note:

PSA/Ford sprockets will not have the Litens logo, but usually have a recessed hole in the sprocket or crank sensor ring.



Oval / 'Smart' camshaft sprocket vs traditional round sprocket

Oval Crankshaft SmartSprocket



Emission components are often seen as seasonal products, and while sales do tend to peak in spring and winter, there are actually opportunities all year round.

Winter (December - February)

Winter conditions such as cold temperatures, road salt, and moisture cause accelerated wear on exhaust systems, particularly through corrosion, which increases demand for repairs and replacements, especially for older vehicles. Emissions testing becomes more difficult in winter due to reduced engine efficiency and increased emissions, leading to more failed tests. This creates sales opportunities for catalytic converter repairs and other emissions components. Shorter winter trips also contribute to water buildup in exhaust systems, further boosting maintenance needs.

Spring (March - May)

In spring, the UK experiences a spike in MOT tests, as many vehicles require emissions-related repairs to meet standards. This leads to increased demand for exhaust and emissions components, making spring a key period for sales. Post-winter maintenance also drives demand, as drivers repair damage caused by harsh conditions and prepare their vehicles for summer driving.

Summer (June - August)

During summer, long-distance travel for holidays causes wear and tear on vehicles, maintaining steady demand for exhaust system repairs toward the end of the season. Although the risk of corrosion decreases in warmer months, preventive maintenance before road trips creates additional sales opportunities for exhaust and emissions components.

Autumn (September - November)

Autumn brings another spike in MOT tests, driving sales of emissions-related repairs. As drivers prepare for colder weather, pre-winter maintenance becomes common, increasing demand for exhaust system check-ups and repairs. After heavy summer travel, vehicles may also require repairs to address wear from extended use.

Year-round, the UK's strict emissions regulations ensure consistent demand for repairs and upgrades, particularly around MOT testing periods or when regulations change. The combination of seasonal factors and ongoing regulatory requirements creates a constant flow of sales opportunities for exhaust and emissions components throughout the year.

EuroFlo Quality Product

EuroFlo exhausts are manufactured in our ISO 9001/TUV accredited factory and only EuroFlo offers an industry leading 3 year warranty on all exhaust components.

- Fully Aluminised – Internally and externally
- Double Skinned
- 3 Year Warranty
- OE style bracketry, high quality olives
- Heavily engineered interiors
- Interiors pressed together, not welded, to prevent interior corrosion
- Specific baffle tube hole patterns developed for each vehicle
- Unique Sound Control Chamber Technology
- Ongoing Homologation programme



Delivery and Availability

As a distributor of EuroFlo products, our branches have instant same-day access and availability from their regional warehouses. This means that the chances of even the most exotic or unusual vehicle clogging up your ramp while waiting for a EuroFlo emissions component are extremely low. After all - Time is money!

For more information on EuroFlo's full range
Please visit www.euroflo.co.uk or contact your local branch

FRAM[®]

GLOBAL FILTRATION EXPERT






GERMAN MANUFACTURERS TRUST FRAM

VEHICLES FITTED WITH OE FRAM FILTRATION

 <h4>CH12129ECO</h4> <p>AUDI (8W) S4, RS4, A5 (F5) S5, RS5, A6 (4A) S6, RS6, 55 Tfsi, A7 (4KA) S7, RS7, Q5 (FY) S05</p> <p>PORSCHE Cayenne III 2.9S, 3.0 E-Hybrid, 4.0S, Macan (95B) 2.9 GTS, 3.0S, Panamera (971) 2.9 E-Hybrid, 4.0 T E-Hybrid</p> <p>VOLKSWAGEN Touareg (CR7) 3.0 TSi</p>	 <h4>PH11788</h4> <p>AUDI A1 (8X) 1.4 Tdi</p> <p>VOLKSWAGEN Polo (6R) 1.4 Tdi</p>	 <h4>CH11442ECO</h4> <p>MERCEDES BENZ A-Class (W177) A160, A180, A200 Mild-Hybrid, A250e, B-Class (W247) B180, B200, B200 Mild-Hybrid, GLA (X247) 200, 250e, Citan (W420) 110, 112, 113</p>
 <h4>CH12880ECO</h4> <p>MERCEDES BENZ S-Class (W221) S580, S63AMG, SL (R232) 55AMG, 63AMG</p>	 <h4>P12980</h4> <p>BMW X1 (U11) 18d, 20d Mild-Hybrid, 23d Mild-Hybrid, 2' series (U06) 218d, 223 d Mild-Hybrid</p>	 <h4>PH9599</h4> <p>VAUXHALL Astra L 1.2, Combo E 1.2, Crossland 1.2 Puretech, Corsa F 1.2 Puretech, 1.2 MHEV, Mokka II 1.2</p>

FRAM covers **118 565 311** German vehicles circulating to this day*

GERMAN APPLICATIONS FRAM FLEET COVERAGE*

-  OIL **99.12%**
-  PETROL **96.67%**
-  AIR **94.96%**
-  CABIN AIR **96.94%**
-  DIESEL FUEL **96.22%**



*Source Tecalliance 2023

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NEW SEASON NEW PRODUCTS



ZEROCOL P-OAT

ZEROCOL SP-OAT

Phosphated OAT-based coolant, free from silicates, borates, nitrites and amines.

Designed to offer superior protection at high temperatures, especially for aluminium components in modern engines.

Suitable for more than **6546** car/**926** van applications and wide range of brands including **Citroen, Ford, Hyundai, Lexus, Mazda, Mitsubishi, Nissan, Peugeot, Suzuki, Toyota, Vauxhall** and many more.

Part numbers
1 Litre 2639 / 5 Litre 2640

Cutting edge coolant formulated using a combination of organic salts, phosphate and silicates to protect the most advanced engines and certain battery electric vehicles.

Silicate stabilisation technology ensures excellent performance even under extreme conditions.

Suitable for more than **9710** car/**926** van applications including **Vauxhall, BMW, Ford** and more.

Part numbers
1 Litre 2643 / 5 Litre 2644

Renault H5F An Oily Disaster

The Renault H5F is a 1.2l 4-stroke direct injected engine co-developed by Nissan and Renault. The main issue plaguing the engine is high oil consumption. This has been reported by a plethora of drivers online, and even addressed by Renault. In fact in 2022 a legal case was started against Renault on behalf of the drivers who suffered. This fault has led to a wide range of drivers having their oil drained sooner than expected.

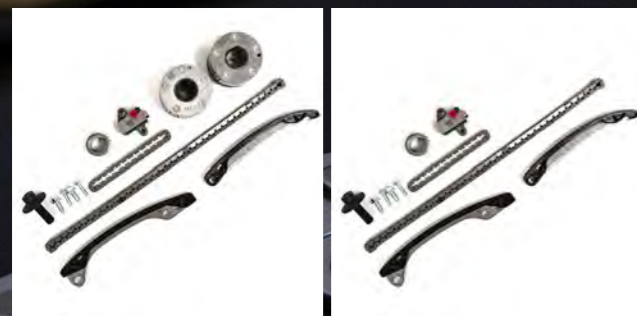
The oil plays an essential role in the engine supplying lubrication for all the vital components, including the timing chain and camshaft. Overconsumption of oil in these vehicles causes drivers to not even notice that it has drained and once this runs low these components will receive an insufficient level of lubrication, leading to metal on metal contact and ultimately full engine failure.

Despite the threat of a formal investigation, the issues surrounding the excessive oil consumption still persist. With a variety of applications featuring the engine, excessive oil consumption may just be something that these drivers will need to watch out for.



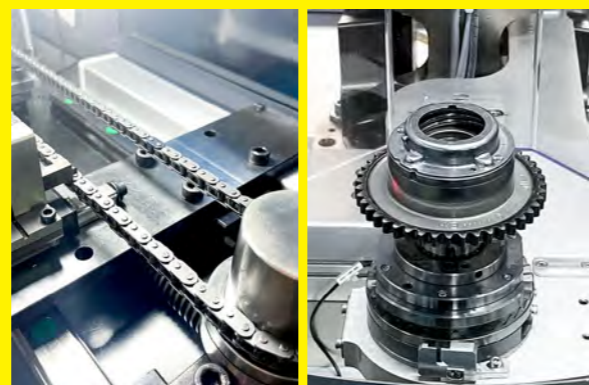
TCKs for the H5F

It's no secret that a lot of drivers are quite relaxed when it comes to carrying out the necessary maintenance on their vehicles. In fact engine failure due to a lack of oil change is one of the most common causes. Pair this with an engine that burns through oil at an alarming rate and you can expect a very high turnaround on these parts.



GTCK206

GTCK206F



GT Automotive parts aim to ease this issue by supplying parts matching or exceeding OE quality at an affordable price.

All GT Automotive Timing Chain Kits go through rigorous testing to ensure longevity and a consistent chain tension.

GT Automotive

OE Manufacturing for the Aftermarket www.gtautomotiveparts.co.uk



HELLA
STARTERS AND ALTERNATORS

How to fully test a start-stop system with HELLA

Vehicles fitted with start-stop systems employ highly efficient alternators with an overrunning alternator pulley. Heavy duty starter motors are also installed to handle the increased number of start cycles over its entire service life.

However, the system can still go wrong. The automatic start-stop function can only be guaranteed if all components of the start and charging system are operating correctly.

Using a Volvo V60 equipped with Eco Start-Stop DRIVE as an example, HELLA explains how the system works: The car is fitted with an Absorbent Glass Mat (AGM) battery to ensure higher start and supply reliability, with an intelligent battery sensor mounted on the negative terminal to monitor battery condition. A secondary battery is installed to support the electrical system when the engine is off.

The alternator supplies power consumers while the engine is running and maintains the battery charge, with output depending on engine speed. The maximum alternator output is only generated above 2,000 rpm. A charge regulator is installed in the alternator. The LIN interface connects the charge controller to the ECU. By mounting an overrunning alternator pulley only, the driving force of one direction of rotation is transmitted to the alternator, reducing friction and wear.

Meanwhile, charging is intelligently controlled via the ECU, which switches on the secondary battery via a relay for the charging process. The charging time of the secondary battery is calculated by the central electronics module (CEM) and forwarded to the ECU.

If a fault occurs, the whole system needs to be checked, including the starter and alternator, but before that, the batteries must be checked. Once all electrical consumers in the vehicle have been switched off, a good battery will show a voltage between 12.4 - 13.2 volts, if the value is below 12.4 volts, the battery must be recharged. If the result is the same after charging, test the battery and replace, if necessary.

Once the battery state is clear, check the alternator: First check the belt drives and the electrical connections, then check the

power supply of the alternator. A suitable device must be connected to alternator terminal B+ and the housing ground on the alternator to do this. The measurement must be equal to the battery voltage. In this case, the setpoint value is the battery voltage, with a maximum deviation of 0.5 volts. If the difference is greater, check the wiring for faults, such as interruptions or contact resistance.

Then, check the alternator charging voltage and current. Use a suitable device and connect the current clamp close to alternator connection B+. Connect the voltmeter's red cable to alternator B+, and black to alternator ground. Run the engine at idle, then load the system with approx. 40 amperes by switching on some electrical consumers, (interior blower, air-con system, heated rear window). Next, increase revs to approx. 2000-2500rpm and read the results, the control voltage must not drop below the setpoint value of 13.7V - 15.0V by more than 0.5V, and the amperage must be higher than the total current consumption of all activated consumers.

The alternator can be diagnosed either via the ECU or CEM. Many vehicle systems additionally provide digital values as parameters for fast diagnosis. Parameters indicate the status or setpoint and actual values of the component. In this example, information about the IBS sensor and the battery's state of charge can be accessed.

For more information on HELLA's comprehensive starters and alternators program, please scan the QR code below:





WINTER WITH WIX FILTERS WINTER BENEFITS OF CABIN FILTERS



With winter quickly approaching, vehicle owners and operators may look to undertake winter checks to get them through the winter season. However, this does not just mean tyres, washer fluid and headlights. The importance of a quality cabin filter should also be included in these seasonal checks.

For many, cabin filters are 'pollen filters'. Whilst this is true and pollen is one of the contaminants that cabin filters remove from the incoming air, it leads to a perception that this so-called 'pollen filter' is a summertime only part, or only of importance for people with a pollen allergy. Subsequently, cabin filters can suffer from a lack of focus in winter.

Outside of the obvious filtration benefits (filtering the cabin air from particulates such as dust, dirt, tyre rubber, agricultural chaff...and yes, pollen), they also affect conditions in the cabin and can also have safety implications with regards to visibility and driver awareness - especially in the cold, dark, wintery months.

Take visibility as an example. Ever had misted windows in the winter? Ever see drivers frantically rubbing the condensation from their windscreens whilst haphazardly driving from their house or workplace? This can actually be caused by poor airflow into the cabin by a blocked cabin filter. This potential blockage can cause poor airflow into the cabin and hence this ventilation issue causes misted windows - a major issue with visibility, especially on dark, winter roads with the oncoming glare of headlights. Advising a vehicle owner or mechanic of this and providing the option of a quality cabin filter not only enhances reputation but provides a safety benefit.

For longer distances, poor airflow from a neglected cabin filter can cause musty smells and a stuffy cabin. When journey times are long, this can cause headaches and drowsiness, thus increasing the risk of an accident. Couple this with the misted windows (mentioned earlier), then it is a real issue for the driver.

And finally, as a worst-case scenario, constant strain on the air-conditioning system caused by a blocked cabin filter can lead to poor function or even failure - expensive at the best of times.

Cabin filters from WIX Filters featuring MICROBAN technology prevent the growth of allergens, mould and bacteria on the filter and hence help ensure comfort of travel, as they protect against sneezing, eye irritation, or nasal congestion - i.e. the allergic reactions that are categorised as the third most common chronic diseases in the world, according to the WHO.

WIX cabin filters, built with the quality reassurance of 85 years of manufacturing and expertise are an excellent choice to prevent any winter mishaps (and still take care of pollen!).

WIX Filters.
They get the job done!



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NEW! PERFORMANCE THAT'S OUT OF THIS WORLD.

FOR WINTER 2024



Since the dawn of the motor vehicle, our beams have lit our journeys around the planet. Today we deliver our most advanced upgrade bulb line up for that 'extra' boost!

A New Era for Lucas Bulbs: Lighting the Way for the Next Generation

For nearly 150 years, the Lucas brand has illuminated our paths - long before the Ford Model T rolled off the production line, and even before the first Mercedes 'horseless carriage.' From the seas to the streets, Lucas lighting has been trusted by generations. As a mainstay in the automotive aftermarket, Lucas lighting continues to shine brightly, meeting the evolving demands of distribution chains, technicians, and drivers alike. Now, the brand is poised for an exciting leap forward with a new generation of Lucas bulbs, driving its market presence to unprecedented heights. Behind this innovation is ELTA Automotive, based in Birmingham - the birthplace of Lucas. As one of the most respected lighting specialists and the longest-standing Lucas licensee, ELTA has launched a dynamic three-pronged strategy to propel the brand. By forging global manufacturing partnerships, implementing rigorous quality assurance through cutting-edge testing facilities, and revitalising the Lucas brand image, ELTA is bringing 150 years of heritage back into the spotlight of the automotive industry. This year Lucas has seen a huge increase in demand and distribution, ensuring that Lucas is once again top of mind for British motorists, cementing its place as a leader in the aftermarket lighting sector.

Brighter or Whiter? That is the Question!

Leading the charge in Lucas's 2024 bulb line-up are two flagship upgrades, designed to meet the key desires of today's drivers: Brighter or whiter? With this powerfully simple choice, upgrading vehicle lighting has never been easier.



Brighter?

Look no further than the Lucas LightBOOSTER, now offering up to an incredible 200% more light* on the road. With options for 100%, 150%, and 200% brightness increases, there's a solution for every budget. Whether drivers need halogen or HID, they'll enjoy enhanced visibility, all while staying 100% road legal and e-marked for safer driving.

LIGHTBOOSTER

Whiter?

Enter Lucas WhiteBOOSTER, our most advanced blue mask technology to date. It's engineered to filter out yellow light at the brightest points of the premium filament, delivering a stunning 5000K[†] white light for halogen bulbs, and up to 6000K[†] for road-legal HID. The result? A crisp, white look that enhances both style and provides a more modern look.

WHITEBOOSTER



By focusing on two clear upgrade paths; style or performance - Lucas simplifies the decision-making process for drivers, cutting through complexity to boost sales conversions and improve customer satisfaction.

*MEASURED AT KEY POINTS ON THE ROAD / †MEASURED IN THE HEADLAMP

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TOROTEC

AUTOMOTIVE LUBRICANTS

high performance

engine oils for passenger cars



TOROTEC engine oils have been designed to satisfy the demands of the modern engine, offering outstanding high-performance, fuel-economy and wear protection in even the harshest of environments

Introducing **TOROTEC** Premium Engine Oils by **Aztec Oils**:

- Extensive product range engineered for all makes & models
- Designed for exceptional results for all vehicle operations.
- Rigorously tested to meet the highest industry standards.
- Built to exceed OEM quality & maintenance requirements
- Proudly manufactured in the UK



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AZTEC OILS
THE LUBRICATION SPECIALISTS



ZF AFTERMARKET



SACHS HIGHLIGHTS THE IMPORTANCE OF QUALITY AND EXPERTISE IN CLUTCH REPLACEMENT

As we move into the colder months, vehicles across the country face increased strain, particularly in essential components like manual transmission clutches.

SACHS, from ZF Aftermarket, a brand synonymous with quality and innovation, urges technicians to prioritise premium clutches over cheaper or remanufactured options.

Stuart McLeod, ZF Aftermarket Technical Support & Training Lead, commented: "Drivers often seek to reduce repair costs, but cutting corners with clutches can be costly in the long run. Our SACHS clutches are built to the highest OE standards and have a 24-month unlimited mileage warranty. Taking a risk on low-quality alternatives can lead to poor driver experience, vehicle downtime and repeat repairs."

In addition to SACHS' product reliability, McLeod emphasises best practices in clutch replacement, advising technicians to follow manufacturer data, use the correct tools and ensure careful inspection of surrounding components during repairs.

SACHS provides comprehensive fitting instructions, a technical helpline, and even video call support to assist technicians with vehicle-specific issues. SACHS also offers extensive training and support through its ZF [pro]Tech network, which gives independent garages access to technical resources, IMI certification, and expert advice.

McLeod added: "Technicians must understand that using the right tools, like our self-adjusting clutch mounting tool, and applying the correct spline lubricant can prevent common errors and ensure a successful, long-lasting repair."

SACHS stands firmly against solid flywheel conversions, a standard but risky cost-saving measure.

These kits often result in increased vibrations, noise and even crankshaft failure. "Our commitment is to quality and reliability, which is why SACHS doesn't produce solid flywheel conversion kits," said McLeod.

Please visit aftermarket.zf.com for more information on ZF's range of SACHS clutches.



Choose excellence in every part.
Find out more at aftermarket.zf.com/sachs/pc-clutches

**PROVEN PERFORMANCE
DESIGNED TO LAST**





TRUPART, WHEN IS A MIRROR NO LONGER JUST A MIRROR?



The humble door mirror has come a long way, evolving into a critical safety feature in modern vehicles. Today's mirrors integrate advanced technologies like Blind Spot Warning (BSW) systems, which help drivers detect hard-to-see areas and avoid collisions.

BSW monitors the vehicle's sides and alerts the driver with a light indicator in the mirror or window frame—sometimes paired with a sound warning. This system proves especially useful when changing lanes or passing another vehicle.

In most cars, BSW activates at certain speeds, and the warning lights illuminate the side mirrors when the system is operational. While some vehicles automate BSW, others may require manual activation via a button. These systems typically use radar sensors located under the rear bumper or side mirrors to cover the blind spots, extending approximately 10 feet beyond the vehicle.

Despite these advances, BSW isn't foolproof—small objects like motorcycles or bicycles might not always be detected due to sensor limitations. However, they remain invaluable in reducing accidents caused by vehicles slipping into blind spots during lane changes.

WHEN IT COMES TO A REPLACEMENT, WHY CHOOSE TRUPART MIRRORS?

Trupart's range of aftermarket mirrors is designed to keep pace with these innovations, ensuring technicians can offer their customers high-quality replacements. Trupart mirrors meet or exceed OEM standards, making them reliable for vehicles equipped with features like BSW, puddle lamps, and heated glass. With direct-fit compatibility across various car brands and models, Trupart makes installations seamless and efficient for today's technicians.

All their mirrors are built from durable materials, providing long-lasting performance without the hefty OEM price tag.

Installing a Trupart mirror means offering your customers safety, convenience, and cutting-edge technology in one affordable package.



Anti-Freeze (Coolant), what you need to know...

What defines product quality? How to ensure quality is delivered?

What regulation changes will we see?

Corrosion Protection

Inhibitor packs are specifically designed to protect the vehicle's cooling system from corrosion. Prescribed dilution ratios of coolants (anti-freeze) ensure these inhibitors perform as expected once poured into the vehicle to provide up to 5 years or 100,000 miles protection (see individual packs for details).

When comparing the strength or quality of an anticorrosion (inhibitor) package, a good indicator of quality is the reserve alkalinity, where a higher value is desired.

A typical result of an insufficient inhibitor pack being used will be premature failures on thermostat sensors due to cooling system corrosion.

Freeze Protection

OEM anti-freeze formulas have a freeze protection of -37°C, to protect wherever the car is driven. The typical freeze protection utilised in the UK is -20°C. Polygard and Polytech products can be diluted down to meet this protection level, saving on space and the cost of shipping water from your suppliers.

**Anti-Freeze : Water dilution in % volume 33:66
Freezing protection -19°C**

Ensuring quality is delivered

A critical part of ensuring the consistent quality of the Polygard and Polytech brands is the quality stage-gate between blending and filling processes, where the technical team take a sample of each batch to the laboratory for testing.

There is a lot of confusion in the market surrounding terminology, especially 'Concentrates' or 'Ready to Use'. These phrases in particular, have become a marketing tool to target desired audiences. Our advice to cutting through the noise, is sticking to the key quality indicators of freeze protection at the prescribed dilution ratios and reserve alkalinity.

New regulations – 2-EHA

The UK is predicted to soon adopt an EU directive restricting the use of a chemical (2-EHA) which is currently in some anti-freeze. The expected impact would be re-classifying the product as 'Professional use only', preventing sales to the public and would warrant updates to the product's hazardous labelling.

The EU regulation change could also lead to supply issues, as overall demand for the chemical naturally declines regardless of UK adoption of the legislation.





PERFORMS WELL UNDER PRESSURE

FAI Water Pumps

At FAI we can offer a true 'all makes' premium quality water pump programme covering European, Japanese, and Korean passenger vehicles and commercial vans.

The original specification is strictly adhered to during the manufacturing process, ensuring a quality product every time. We follow OE design & materials when implementing components with plastic impellers, retaining the strength and endurance of the steel. The trend within modern applications for PPS (Polyphenylene Sulphide) is growing as it allows for complex impellor designs when compared to Aluminium; meaning the Water Pump can have an increased flow rate and prolonged life span.

Our partnered factories are ISO accredited, implementing stringent quality assurance processes to ensure the functionality and finish of FAI pumps are of the highest standard. The manufacturing process starts with raw material analysis within the pre-production stage, followed by the use of the latest generation CNC centres to ensure accuracy; finally, bench tested for flow and delivery. Processes that ensure the longevity of our parts, which is paramount to our success.



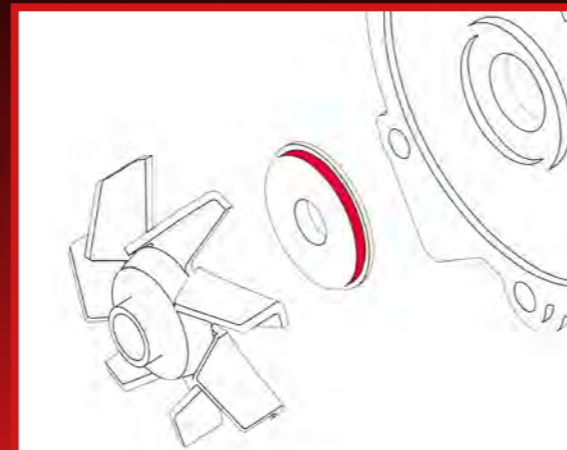
Silicon Carbide Seals

Why it's not a leak on your new water pump.

Cooling system contamination is a contributing factor in the premature failure of water pumps. Contaminants erode traditional seals used in water pump designs which leads to leaking. To improve water pump performance and longevity FAI pumps include a silicon carbide seal (SiC).

Silicon Carbide seals require the addition of coolant and heat to help create the seal. This is only possible when the water pump is installed and the engine is running. It is normal to see a trickle of coolant coming from the breather holes in the casting around the bearing area. This will only last a short time until the permanent seal is made.

Misdiagnosis has seen the unnecessary/premature replacement of new water pumps.



PREMIUM QUALITY CABLES

AVAILABLE FROM FIRST LINE



DON'T GO TO THE DEALER!

With more than 350 Gear Control Cables available, you don't need to go to the dealer!

The demand for premium quality replacement cables to service the gear control mechanism on numerous automotive and light commercial vehicles is growing rapidly year on year. Similar to a traditional gear linkage, the Gear Control Cable selects and engages the different gears within the transmission system. To ensure a smooth gear selection it needs to be in good condition and replaced with a high quality product when it becomes worn.

In some instances, it is still a common thought that these are dealer only products, when in fact, First Line offers an extensive range for passenger car and light commercial vehicle applications, all of which are available from your local branch.

WHY DO THEY FAIL?

There are a number of reasons Gear Control Cables fail, here are some of the more common ones:

1. Cold weather can have a particularly adverse effect, as freezing conditions can cause the gearbox system, including the gear cable, to seize up and excessive force can inadvertently be applied by the driver. As a result, the inner wire can break when they attempt to change gear.
2. Cables five years or older are the most likely to fail, as the lubricant inside the outer sleeve loses its performance as its viscosity increases, which causes the inner wire to bind and therefore, not move properly.
3. A secondary reason is that there is an issue with the function of the gearbox, a gear failure for example, which can also result in excess force being applied to the gear cable, causing the inner cable to break.
4. Similarly, a problem with the gear arm lever or mechanism, which can cause the cable to operate at the wrong working angles, can also result in the failure of the cable at its connection points.
5. Finally, if the vehicle is operating in extremely hostile conditions, such as off-road and in mud or dust, debris can get inside the gear cable and block or restrict the movement of the inner wire, meaning the gear cable cannot correctly control the gear selection.



Here are a selection of the most requested applications entering the workshops today.

Ford KA 1.2, 1.3 TDCi 2008>2016
FKG1273

Fiat 500 2007>
FKG1321

Kia Rio III 2011>2017
FKG1302

Vauxhall Mokka X 2012>
FKG1304

Vauxhall Vivaro 2001>2014 / Renault Traffic 2001> / Nissan Primastar 2001>
FKG1003

Vauxhall Movano II 2010> / Renault Master II 2011>
FKG1254

Renault Kangoo 2008> / Mercedes Citan 2012>
FKG1238

2,600+ REFERENCES

Brake Cables:
VW GOLF PLUS V (2005>2013) - FKB3350

Clutch Cables:
KIA PICANTO (2004>2011) - FKC1495

Gear Control Cables:
FORD KA (2008>2016) - FKG1273

Speedometer Cables:
FORD ESCORT (1973>1980) - FKS2013

Throttle Cable:
RENAULT CLIO (1998>2010) - FKA1085

CHECK OUT OUR WORKSHOP VIDEOS



Scan the QR code to view our selection of Gear Control Cable installation videos

MAKE FIRST LINE YOUR FIRST CHOICE FOR GEAR CONTROL CABLES



www.firstline.co.uk

MAHLE VICTOR REINZ GASKETS AND ENGINE COMPONENTS FROM MAHLE

MAHLE Aftermarket highlights the importance of quality engine parts and gaskets for vehicle longevity.

As modern vehicle engines become increasingly complex, the importance of using high-quality components, such as gaskets and engine parts, must be considered. Alan Povey, quality, warranty and technical manager at MAHLE Aftermarket, a leading supplier of premium engine components, is emphasising that understanding the correct processes and installing the right parts is crucial to preventing engine failure and ensuring long-term reliability.

Composite Cylinder-Head Gaskets.

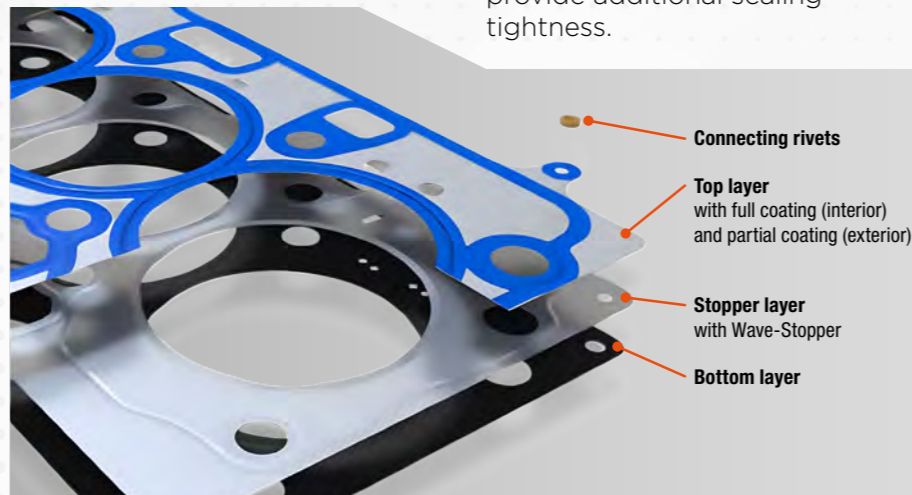
The classic composite head gasket is a compressible flat gasket. It consists of a tanged metal carrier sheet, onto which the composite material is rolled on both sides, i.e. engine block and cylinder head. Metal beads (fire rings) seal the combustion chamber and protect the sensitive composite material from overheating. The material surface is impregnated to prevent the gasket swelling when it encounters liquid media such as oil, water, or antifreeze. So-called Viton elements of elastomer materials permit a partial increase of mounting surface pressure in the vicinity of oil pressure channels. Due to the mounting surface pressure, the material is deformed slightly so that it adapts optimally to the sealing surfaces. Gaskets with low elastic recovery properties require very high bolt clamping forces for good sealing. Hereby, the minimum web width is approx. 6mm to withstand the elevated pressures and temperatures during combustion.

Multi-Layer Steel (MLS) Cylinder-Head Gaskets - Innovative Sealing Systems for New Engine Concepts.

Improved torque and performance, better fuel economy and reduced emissions have been key focuses for engine development over recent years. During engine design, the development targets determine the demands placed on modern sealing systems. Increasingly high ignition pressures and temperatures lead to high stresses for head gaskets.

The solution: Multi-layer steel cylinder-head gaskets - or simply MLS head gaskets.

MLS head gaskets consist of two to five sheets of spring or carbon steel, which are sandwiched with the sealing material to form multi-layer steel head gaskets. For improved sealing of gases and liquids, beads around combustion chambers and oil/coolant passages increase the local sealing pressure (macro sealing), whilst full-surface or partial elastomer coatings provide additional sealing tightness.



Multi-Layer Steel (MLS) Cylinder-Head Gasket



PRO TIP: Maximum values for component unevenness and distortion for passenger cars. Practical measurement using a straightedge and the light-gap method.

IN PARTNERSHIP WITH OUR KEY SUPPLIERS



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