



MOTOR FACTORS

# SMARTCHOICE

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THE SMART CHOICE FOR TODAY'S TECHNICIAN!

# WE'RE HOT ON BRAKING!

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THE LATEST ULTRA-LOW VISCOSITY OILS FROM GRANVILLE



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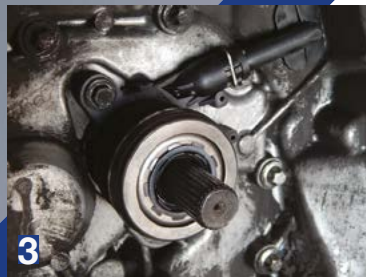
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MOTOR FACTORS

# Product Focus

## Nissan Micra K13 1.2L Clutch Replacement



The Nissan Micra has been in production since 1982. Now on the 5th generation – it is still a popular choice of car as ever. The model featured in this article is a 4th generation K13 model, fitted with the 1.2 three-cylinder petrol engine. The example shown in this article was reported to have a slipping clutch, which would require a clutch replacement.

With the vehicle in the workshop, the bonnet was opened, and the battery and air cleaner assembly were removed. This was followed by the battery tray, which is held in place by four bolts, two nuts and has several retaining clips that hold different parts of the wiring harness in place. (Fig 1).

With the battery tray out of the way, the gear selector linkage cables were revealed. They required unclipping and the retaining bracket needed to be unbolted from the transmission. The selector cables were then set aside until they were required to be refitted.

Next, was the removal of the crank sensor. If this is left in place, there is a high risk that it will become damaged against the flywheel during the removal of the transmission. This was followed by the unclipping of the plastic hydraulic pipe which is connected to the concentric slave cylinder (CSC). The pipe was sealed to prevent any excess fluid from leaking during the removal of the transmission.

Working at the top of the transmission, the upper bell housing bolts were removed, taking note of the original position as they are different lengths. The vehicle was raised to a working height and both front wheels were removed. This was followed by the hub nut retaining split pins and hub nuts, readying the removal of both driveshafts to allow plenty of room to remove the transmission.

Working on the left side of the vehicle, the front wheel arch liner was removed, revealing the reverse lamp switch situated on the end of the transmission. This required unplugging and the wiring harness that runs under the transmission mounting was unclipped and put to one side. There is also an earth cable that required unbolting from the transmission. The vehicle was raised again, and the transmission oil was drained, followed by the removal of both front lower arm ball joints from the hubs; this leaves enough room for the driveshafts to be removed. With a suitable pry bar, the driveshafts were levered out to release the retaining clips so that the driveshafts could be removed from the transmission, being careful not to damage the seals. (Fig 2)

Next was the removal of the heatshield – which is above the right driveshaft – as this would restrict the removal of the transmission. The rear steady bar was removed that is fitted to the transmission and the rear cross member. Then, the engine required supporting before any other part could be removed. With the engine supported, the transmission mounting was removed, and the lower bell housing bolts were also removed, again noting their original position before removing the transmission. With the transmission removed, the clutch pressure plate and friction disc were removed and inspected.

The friction plate material was worn down to its retaining rivets and needed immediate replacement. The flywheel was cleaned and inspected for defects before fitting the parts contained in clutch kit ADN130236. The attention then turned to the removal of the old CSC.

Once removed, the transmission was cleaned of excess worn clutch material. Then, the input shaft seal was inspected for fluid leaks before fitting the new CSC. (Fig 3).

With all the new clutch parts fitted, the transmission was installed in reverse order and filled with the correct grade oil. The last thing to do was to bleed the air from the clutch hydraulic system. (Fig.4)

1. First, top up the clutch fluid reservoir with new clutch fluid and then connect a transparent hose to the air bleeder of the bleeding connector which is part of the CSC. Do not use a vacuum or pressure bleeder on this system as this may cause damage to seals within the clutch hydraulic system.
2. Press the retaining clip down into the bleeding connector, and maintain the position – this is to release the clutch hydraulic tube.
3. Slide the tube back by approximately 5mm to release the retaining clip. This will allow clutch fluid to flow from the air bleeder. Hold the tube to prevent it from getting disconnected as the clutch fluid tube is under hydraulic pressure.
4. Get an assistant to depress the clutch pedal and hold it. Then, bleed the air from the CSC until no bubbles are observed in the clutch fluid.
5. Push the clutch tube back into its original position. Release the clutch pedal and wait 5 seconds. Make sure the retaining clip is complete and is in its correct position to retain the clutch tube.
6. Check that the fluid level in the reservoir is within the specified level during and after air bleeding. Check that the clutch pipe is correctly retained, and no chafing can occur.

After successfully bleeding the new CSC, the clutch operation, pedal free play and travel height were all checked. Additionally, the clock and the radio were reset. The clutch operation was tested. Thereafter a road test was carried out. With the new clutch fitted and the CSC bled, the new clutch was operating perfectly.



Right First Time®

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# Tesla Model S and X Cabin & HEPA Filter Replacement



The Tesla model S and X are equipped with “Bioweapon Defence Mode”. This feature, which has been available as an option on these models since 2016, is now standard on both the “S” and “X” since July 2018.

Part of this system is a very large high-efficiency particulate air (HEPA) cabin filter that contains separate acid and alkaline gas neutralization layers to filter out a wide range of contaminants. This filter is located within the front of these Tesla models (commonly known as the “Frunk” seen opposite). When activated, the Bioweapon Defence Mode recirculates the air through the high-quality HEPA filter, purifying it within the cabin whilst avoiding the intake of contaminated outside air. All model S and X vehicles are equipped as standard with a cabin filter, which is located within the heating system behind the glove box. However, when Bioweapon Defence Mode is activated, it adds the additional HEPA filter as another layer of filtration.

In addition to the multiple layers of filtering material, both filters for the interior air (including the HEPA filter) also contain activated carbon to remove a wide range of odours and gases. Additionally, when Bioweapon Defence Mode is engaged, the interior fans are operated at maximum speed to create a positive pressure inside the cabin to minimize the amount of outside air that can enter. This process is similar to a positive pressure room in a biohazard laboratory or hospital, preventing the backflow of bacteria and viruses into other parts of the building.

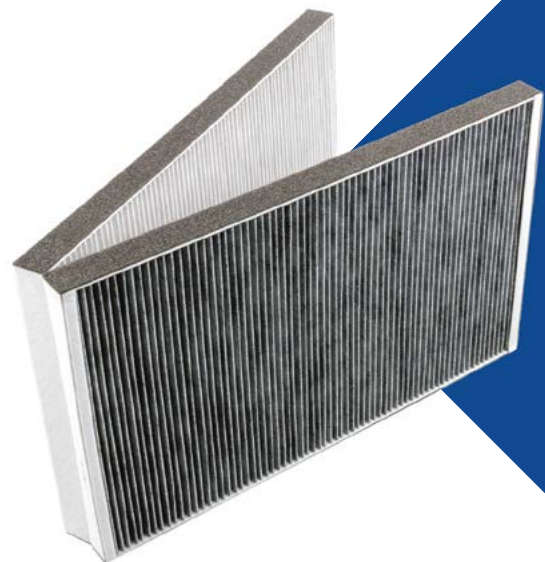
## Cause of Failure

All filters require replacing at set recommended intervals, due to contamination and debris. This is to maintain the efficiency of the system components and - in the case of cabin filters - to protect the driver and passengers for their passive driving safety.

The recommended service interval for the HEPA filter is every 36 months regardless of mileage.

Both Blue Print and febi offer a cost effective, sustainable replacement solution for this HEPA filter. The Blue Print and febi filters replace the filter media section only. This is unlike the OE part where both the reusable frame and the filter are replaced as one unit.

Both Blue Print HEPA filters ADBP250071 & febi 181979 and ADBP250073 & febi 182548 come complete with installation instructions included in the box. These instructions can also be found online at: [partsfinder.bilsteingroup.com](http://partsfinder.bilsteingroup.com)



Place your trust in Blue Print & febi Filters in OE matching quality. The complete passenger car spare part range can be found at: [partsfinder.bilsteingroup.com](http://partsfinder.bilsteingroup.com)



[www.febi.com](http://www.febi.com) & [www.blue-print.com](http://www.blue-print.com)



Right First Time®

**bilstein**group®



WORLD CLASS BRAKING  
ENGINEERED FOR EVS

## WORLD CLASS BRAKING. ENGINEERED FOR EVS.

Allied Nippon dials up the performance and turns down the noise with the introduction of new EV+ brake pads



SCAN HERE



**Renowned brake pad manufacturer, Allied Nippon, is poised to make a major impact with the introduction of EV+, a range of world-class brake pads engineered for the future of the automotive aftermarket: the EV. Fully featured, with a unique cosmetic appearance, Allied Nippon is making a strong statement with its all-new, EV-dedicated, and ultra-quiet brake pad formulation.**

With over one million EVs now registered on UK roads and vehicle parc share for the powertrain growing year-on-year, there is a fundamental rationale for Allied Nippon to launch EV+.

Backed by the brand's brake pad manufacturing capabilities, which sees Allied Nippon produce millions of brake pad sets for OE, private label, and own-brand customers each year, EV+ has been designed and developed for the EV.

### Garage opportunity

The primary goal of any brake pad is to bring a vehicle safely to a halt, but EVs present notable challenges through a combination of weight and speed. To combat these challenges, Allied Nippon's development team have armed EV+ with a new friction compound, which is heat-treated through a process known as 'scorching', and then finished with the brand's BRAKEBOOST Instant Friction layer – in Allied red of course! These features combine to deliver enhanced friction stability for superior stopping power.

Allied Nippon also set out to deliver ultra-low noise. The brand believes in safeguarding the serene driving experience delivered by the EV, so Allied Nippon has harnessed a range of premium features to turn down the noise. EV+ are AA noise rated and, during testing, achieved an impressive peak output of just 88Db.

EV+ project lead and Allied Nippon Product Development Manager, Matt

Ellis, believes EV+ provides a genuine opportunity for garages to upsell:

***"With EV+, we have dialled up Allied Nippon performance to new levels, and, whilst remaining competitive, EV+ can command a higher selling price as a result."***

Matt continued: ***"If garages effectively communicate the product message of enhanced stopping power with ultra-low noise to their EV customers, I have no doubt that EV+ can genuinely boost braking revenue."***

### Fully featured

EV+ delivers an all-new specification and each pad incorporates a range of impressive features that enhance the overall product package. This includes:

- 1. NEW Friction material:** Allied Nippon EV+ brake pads feature a specialised friction material selected for its low noise properties and consistent, stable stopping power.
- 2. NEW BRAKEBOOST Instant Friction:** The distinctive 'Allied Red' of EV+ brake pads is much more than a cosmetic touch. It is in fact a resin-based compound known as BRAKEBOOST, which is designed to provide instant friction during the bedding-in process.
- 3. NEW Scorching:** New to Allied Nippon EV+ brake pads is scorching, an additional heat treatment process that takes place after the pad is cured. This process improves friction stability, particularly at high temperatures, and contributes further to the ultra-low noise properties of the pads.
- 4. Multi-material backing shims:** EV+ pads feature multi-material backing shims and,

where relevant to the application, additional stainless-steel shims. This helps reduce vibration and eliminate unwanted noise.

- 5. OE matching chamfers:** An angled section on the perimeter of the EV+ friction material controls how the pad edge contacts with the brake disc. This guarantees effective contact between pad and disc to reduce unwanted noise during operation.
- 6. Identification & branding:** Every Allied Nippon EV+ brake pad is clearly marked with the part number, batch code, and the all important ECE R90 reference which underlines the certification of the pad in-line with R90 regulations. For an unmistakable look, each pad is also neatly branded with 'EV+ by Allied Nippon'.
- 7. Environmentally Sensitive:** Allied Nippon EV+ brake pads are certified copper-free, and 'N' rated by the AASA, safeguarding against marine habitat contamination.

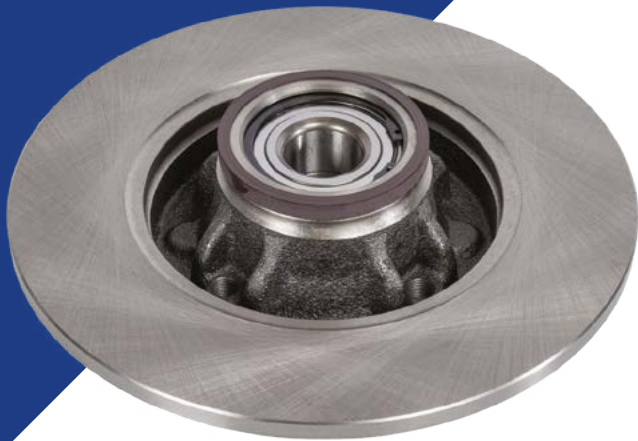
### Range Focus

EV+ will hit the market in late March, as a complement to the brand's already established all-makes brake pad range and deliver 37 part numbers focused on the market's most popular EVs, such as the Nissan Leaf, Renault Zoe and Tesla Model 3.

For more information visit [www.allied-nippon-eu](http://www.allied-nippon-eu)



# Rear Brake Disc with Integrated Bearing For Peugeot, Citroën and DS models



Many Peugeot, Citroën and DS models are equipped with rear brake discs that have an integrated wheel bearing. As a result, this type of assembly allows for significant weight saving, since the brake disc also becomes the wheel hub.

This pre-assembled part also makes replacement quicker and easier for the workshop, whilst eliminating the risk of mounting a bearing with incorrect clearance or seal positioning.

However, care must be taken when fitting this type of brake disc to the stub axle, as this disc/bearing assembly is also fitted with a multipole reluctor for the wheel speed sensor.

With the old brake disc removed from the vehicle, the wheel speed sensor should be inspected for excess corrosion surrounding the mounting area. It is important to note that any excess metal corrosion can alter the position of the sensor – affecting its functionality. This can lead to direct contact with the reluctor, causing damage to the new brake disc assembly (Fig.1).



Subsequently, an increased air gap between the sensor and the reluctor can also occur, resulting in an antilock brake system fault – logged as a sensor implausibility signal fault code in the brake control unit.

Therefore, during the installation of a new brake disc it should be identified if the speed sensor is in contact with the multipole reluctor, or if the air gap is not correctly aligned.

If discovered to be incorrect, the brake disc and speed sensor should be removed.

The sensor seating location should be cleaned of corrosion and - if damaged - the sensor refitted or replaced. With the new brake disc re-installed, and the sensor correctly aligned, a clear 1-2mm air gap between the reluctor and the sensor will be visible (Fig. 2).



Place your trust in Blue Print & febi Braking products in OE matching quality. The complete passenger car spare part range can be found at:  
**[partsfinder.bilsteingroup.com](http://partsfinder.bilsteingroup.com)**



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# SHAFTEC CALIPERS: YES, WE DO!

As your go-to solution for brake calipers, Shaftec takes pride in constantly expanding its range, making it one of the most comprehensive in the aftermarket.

## NEW TO RANGE



PartNo: BC10960  
Make: LAND ROVER  
Model: RANGE ROVER EVOQUE (L538)



PartNo: BC11592  
Make: FIAT  
Model: 500X (334\_)



PartNo: BC11604  
Make: JAGUAR  
Model: F-TYPE Convertible (X152)



PartNo: BC7986  
Make: AUDI  
Model: Q5 (8RB)



Shaftec goes beyond the ordinary – each Shaftec brake caliper is meticulously remanufactured with new pistons, seals, and motors (for EPB units), ensuring unparalleled performance. The confidence in the quality of their products is unwavering, reflected in the robust 24-month, 24,000-mile warranty accompanying every brake unit.

### Other New to Range Applications Include:

- Audi Q7 • Mercedes-Benz GLE (W166) • Audi A4 B9 (8W2, 8WC) • Mercedes-Benz GL-CLASS (X166)
- BMW 5 (G30, F90) • BMW 2 Active Tourer (F45) • Audi Q7 (4MB, 4MG)



## WE TAKE A LOOK AT NAP WHEEL BEARINGS

**Who is NAP?** National Auto Parts, or NAP for short, is a leading name in the automotive industry, offering a diverse range of top-quality aftermarket components.



 **2 YEAR/20,000 MILE  
GUARANTEE**

**What makes NAP so different?** Well, to start with, they've been one of Europe's leading independent suppliers for over 40 years, and throughout that time they've maintained their root philosophy, which is supplying a wide range of quality vehicle components at competitive prices.

**Take their wheel bearings as an example.** Vehicle-bearing technology has continued to advance and change over the years, and so has NAP, endeavouring to remain at the forefront of these changes. From the foundational Standard Tapered Roller Bearing to the latest Generation 3.2, NAP has it all.

**So, can I purchase an NAP wheel bearing today?** Yes, you can, and with over 500 bearing kits in their range, NAP covers the most popular UK vehicle applications. Their extensive range also includes complete hub units and bearings with ABS sensors too, with everything required in

the box to ensure a thorough repair and that all important quick turnaround.

**What about the warranty?** Well, the great news is that NAP wheel bearing kits are supplied with a 24-month/20,000-mile warranty, underlining NAP's confidence in the durability and reliability of their products. All their wheel bearings and related products, and meet or exceed manufacturer specifications, ensuring customers only receive the highest possible quality products when purchasing NAP.

**In summary.** NAP stands solidly as a reliable and forward-thinking partner in the automotive aftermarket industry, offering a diverse range of wheel bearings that align with the ever-changing landscape of vehicle technology. With a commitment to quality, affordability and innovation, NAP keeps the industry wheels turning, one bearing at a time.



## BRAKING MISCONCEPTIONS

When replacing brake pads, discs or shoes it can be easier and certainly cheaper to overlook some of the finer details such as fitting kits and wear indicators. But these extras which technicians often misconceive as optional or irrelevant can have a significant impact on the longevity and performance of the newly replaced parts. The extended range of VXPRO braking parts delivers these components at better value to make the up-sell much more appealing to fitters and drivers. To reinforce the message ELTA VXPRO discuss the real life benefits of each part.

### BRAKE PAD WEAR INDICATORS

Brake pad wear indicators are simple components that play a critical role in vehicle safety. Once the brake pad reaches a minimum depth/maximum wear point, the indicator touches the disc or a circuit is broken, and a dash light is illuminated.

Once triggered the wear indicator is destroyed and should be replaced. However, some fitters avoid replacement by removing the sensor and connecting the wires in order to turn off the light.

But the dangers of this practise are clear... Without the indicator the driver is unaware when brake pads are critical and if they fail when called upon, the results could be unthinkable. The wear indicator also protects brake discs from damage caused by worn pads. We recommend sensors are replaced with every pad.

### BRAKE PAD/SHOE FITTING KITS

The primary components in most brake fitting kits are the springs, whether they are traditional coil springs used in drums or

flat springs to hold pads in place; their fundamental function is to create tension.

But in just 2 years a typical drum spring will have lost 30% of its tension when new and a brake pad spring will have lost at least 50% of its tension!

The results of which range from annoying brake noise to a more significant reduction in braking stability, excessive pad wear and premature disc damage due to uneven braking.

Replacing drum springs will help to prevent poor handbrake performance and stop shoes dragging on the drum.

### BRAKE CALIPER SLIDER FITTING KITS

Brake caliper sliders allow the caliper to move freely and without friction. A failing slider can cause irritating brake squeal and drag that can cause premature pad wear. Both are detrimental to customer satisfaction and your hard earned reputation. So, it is highly recommended to inspect the sliders and replace if there is any sign of wear.

VXPRO fitting kits include everything required for this simple repair.

**COMPLETE JOB. FULL STOP.** As relatively inexpensive parts that play a vital safety role and serve to prolong the life of more costly components, ELTA recommend that vehicle technicians replace brake fitting kits and wear indicators (where applicable) with every pad or shoe and that caliper sliders are inspected and replaced if required.





# VXPRO

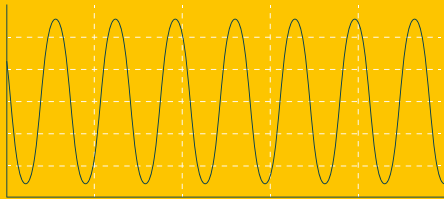
WHEEL SPEED  
(ABS) SENSORS



## PASSIVE Vs. ACTIVE WHEEL SPEED SENSORS

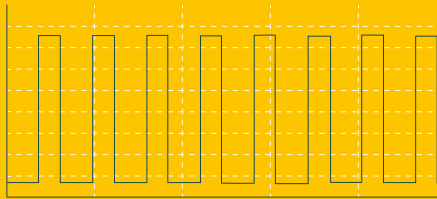
When testing wheel speed (ABS) sensors it is important to determine if the sensor type is passive or active. A resistance test can be used on passive sensors but could damage active sensors.

### PASSIVE ABS SENSORS



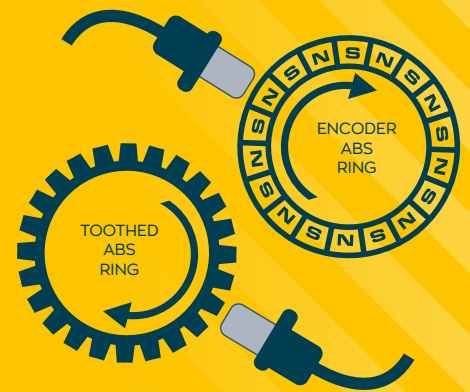
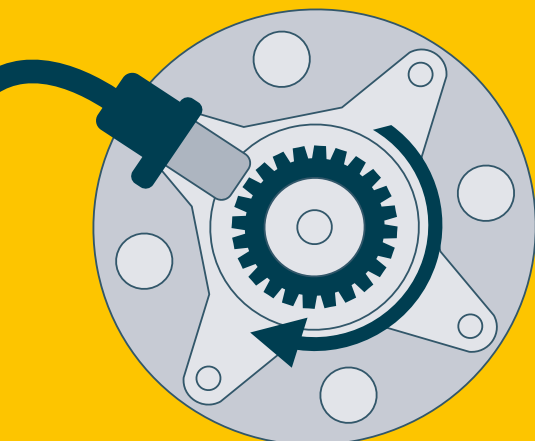
A passive ABS Sensor does not require a power source. The sensor extends a magnetic field to the ABS ring using a coil winding surrounding a pole pin that is connected to a permanent magnet. This type of sensor requires a toothed ABS ring as when the ring rotates and each tooth passes the sensor, a change in magnetic field occurs in the sensor that is measurable as voltage and communicated to the ABS system control unit which converts this AC signal to digital.

### ACTIVE ABS SENSORS



In contrast to passive sensors, an active ABS Sensor requires its own power source. Active sensors are more accurate and overcome some of the limitations of their passive counterparts. They are able to measure lower speeds and some can even determine wheel rotation direction. Active sensors utilise the Hall effect, named after Edwin Hall who made the discovery in 1879. The Hall effect is the production of a voltage difference (the Hall voltage) across an electrical conductor that is transverse to an electric current in the conductor and to an applied magnetic field perpendicular to the current. The hall sensor again uses changes in magnetic field to measure rotation and features a semiconductor chip hall sensor to communicate a digital signal to the control system.

This type of active sensor can use a similar toothed ABS ring to passive sensors but often uses a magnetic or encoder ABS ring. The latter requires no permanent magnet in the sensor and as it is much flatter it can be integrated into the wheel bearing resulting in a much more compact system.



**VXPRO** delivers one of the deepest ranges of wheel speed sensors in the aftermarket. All guaranteed to perform to original equipment parameters, ensuring exceptional performance and driver safety.

**VPG**  
Vehicle Performance  
Guarantee

**OEM+**  
OE Matching Quality  
+ Added Value

**TECHASSIST**  
FREE Telephone and Email Support from our  
Dedicated Team of Experts

**5 YEAR**  
WARRANTY  
No Quibble Returns

AN **ELTA** AUTOMOTIVE BRAND



# MAHLE

## KNECHT ISSUES BEST-PRACTICE FITTING ADVICE FOR FILTERS

Engine technology has advanced at a significant rate over the last few years and with the development of long life oils, filter technology has had to move in line, so while the filter looks the same, its construction and installation has changed.



Knecht shares its advice to ensure correct fitment of its filters, first time, every time, as well as providing insight into this new technology and how the industry can best work with it.

### HYDRAULIC FILTERS

Knecht is seeing more vehicles with special gear boxes and has developed its offering to provide workshop solutions with the correct equipment to drain the system and refill. Technicians shouldn't assume it has been allowed to drain and that all the oil from the system has been removed.

Under or overfilling the gear box can cause damage here - and cost a lot to replace. Draining the system without the machine will only remove up to 50 percent of the oil from the system, against 90 percent using the correct machine.

### OX FILTERS WITH FLEECE END CAP

When assembling Knecht oil filter inserts with the OX sales identifier, a bit more effort is required. There is a simple, practical reason for this.

To ensure a perfect seal between the clean and dirty sides of the oil circuit, the perforation in the fleece end cap developed by Knecht is slightly smaller than the corresponding counterpart in the housing cover. The fleece end cap is thus pressed in between the inner tube (filter) and the standpipe (cover), thereby acting as a "chambered seal".

To decrease the slightly greater effort required, the fleece can be wetted with fresh engine oil prior to assembly.

### FUEL FILTER ELEMENTS WITH MELT-BLOWN COATING

In some Knecht fuel filter elements (KX), the surface appears to have a somewhat coarser fibre structure than normal, but exactly the opposite is true: these are highly efficient microfibrils, applied to the filter paper as an extra layer during the melt-blown process.

The melt-blown coating is applied only to the inflow side (raw or dirty side) of the filter, allowing optimal filtering of the fuel, which flows from the outside toward the inside. The extremely fine melt-blown fibres with a diameter of less than 10 µm retain dirt and foreign particles even more effectively, while also increasing the service life of the filter.

With or without melt-blown fibres, cleanliness is a crucial consideration when replacing the fuel filter, as unpurified fuel must never get into the clean side of the filter, and therefore into the fuel injection system.

To minimise this risk, the remaining fuel should be drained out of the filter housing prior to assembly and disposed of in an environmentally friendly manner. Depending on the type, the filter should also be secured in the housing cover before insertion.

It is important that when replacing the fuel filter, all gaskets need to be coated with clean fuel prior to assembly in order to prevent damage during installation.

Once the filter has been replaced, the fuel system should be bled thoroughly. The key is to always follow the relevant manufacturer specifications.

### LEAKY OIL FILTERS

In vehicles with spin-on (OC) oil filters, leakage from the filter or oil loss from the filter's screw-on flange may occur due to a clogged control valve in the oil pump. This is visually confirmed when the seal has become dislodged or the filter housing has expanded, or even burst in some cases.

This can be typically attributed to deposits and carbonised residue in the engine oil that are swept through the oil pump, where they cause sporadic clogging of the control valve.

Since the oil pressure is no longer adequately regulated or may even cease to be regulated altogether, extreme pressure peaks of over 30 bar may occur as a result. The oil filter is unable to compensate for this tremendous rise in pressure and deforms.

### BURST OIL FILTERS

The seal may become dislodged, or the end cap may bulge significantly, giving rise to insufficient contact pressure between the seal and the filter. As a result, oil is lost directly from the screw-on flange or the filter bursts - in which case the entire end cap detaches from the housing.

In the damage scenario described above, it is not enough to replace the filter. The technician should make absolutely certain that they inspect and flush the entire oil circuit to remove all deposits. They may also need to replace the oil pump (with integrated regulating valve).

You can find out more by visiting <https://www.mahle-aftermarket.com/eu/en/>

Find out more at [www.mahle-aftermarket.com](https://www.mahle-aftermarket.com)

## WHY SERVICE GARAGES CAN'T AFFORD CHEAP EXHAUSTS



With the financial pressure everyone is facing, it can be tempting to specify low cost replacement parts when fixing a car or van. Unfortunately, for critical assemblies that affect vehicle performance and efficiency like the exhaust – fitting a cheap item is a false economy for owners and garages. However, by selecting a system from Klarius Products, both parties can be sure of an exhaust that matches or exceeds OEM performance levels without breaking the bank.

### **Save now, but pay later**

“Fit the cheapest, I’m getting rid of the car soon,” might be a popular refrain for some owners, yet even those looking to move their vehicle on can be stung by a bad exhaust replacement. Critical for regulating emissions, noise and backpressure, a poorly designed exhaust can reduce engine performance, damage the environment and result in a failed MOT. Fitting a cheap product offers savings at point of purchase, but when another replacement is required to ensure roadworthiness or a potential buyer walks away from an unreliable car – the costs mount up.

The same is true for service garages. Cheaper exhausts don’t last as long as OEM quality systems. They’ll degrade faster, either due to corrosion, impacts or other issues that arise from the UK’s terrible road conditions. Consequently, workshops fitting these components can expect premature failures and unhappy returning customers. This costs garages time, money and reputation.

Another problem for technicians is that a budget exhaust may not match the design of the system it’s replacing. While installing an exhaust is never going to be as challenging as an engine out job, trying to change a system that doesn’t correspond with available mounting

points or the floorpan is a nightmare. The reward for achieving it is an improper repair that will adversely affect the vehicle. Service garages simply can’t afford to waste the time and effort on bad exhaust replacements.

### **Exhausts that are fit for purpose**

With customer satisfaction, profitability and time at risk – workshops know that there is no such thing as a cheap exhaust.

Thanks to in-house testing on real-world vehicles of correct make, model and production year - Klarius exhausts are proven to match or exceed the performance of the OEM component. A Fit First Time guarantee also ensures a quick, straightforward installation for garages. Type-approval certification is available for all applicable products across an 11,000+ range that covers the vast majority of cars and vans on British roads.

Automated production and a special grade of aluminised steel ensures that Klarius parts last. A 2-year warranty is offered as standard, helping to protect the reputation of garages and providing vehicle owners with miles and miles of trouble-free motoring.

### **Premium product, premium service**

In addition to supplying a premium product, should a technician run into issues, or have problems identifying a system for a specific vehicle, Klarius also provides a dedicated technical hotline. Unlike a budget brand, a team of product specialists and engineers is ready to assist technicians in delivering a long-lasting repair.

**Technical Hotline: 01538 752561**

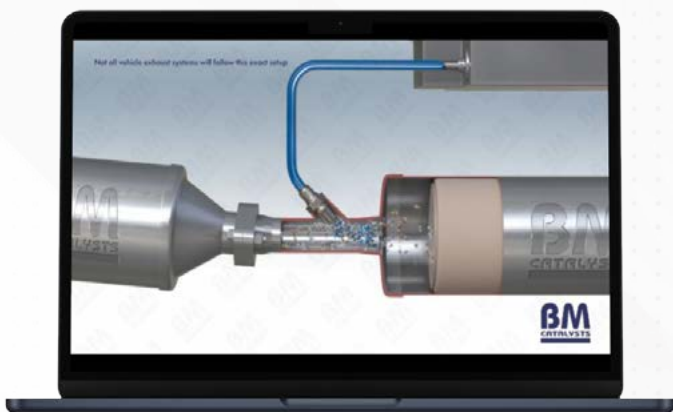
# BM CATALYSTS SUPPORTS GROWTH OF SCR<sub>s</sub> WITH NEW TECHNICAL VIDEO



BM Catalysts, Europe's leading manufacturer of aftermarket hot end emissions products, has launched a new animated video titled, 'How does vehicle selective catalyst reduction (SCR) technology work?', as it continues to support customers venturing into this growing market.

The SCR range, which was introduced last year with an initial five references, has rapidly become a key element of BM Catalysts' product portfolio, with the company now offering 12 references covering 172 different vehicle fitments, all available with associated pressure pipes and fitting kits.

The SCR video is the latest in a series of successful animations by BM Catalysts, following previous videos on catalytic converters and diesel particulate filters.



These videos have proven popular with customers, collectively amassing over 238,000 views to date and serving as valuable resources for understanding complex technologies.

Holly Brailsford, marketing manager at BM Catalysts, emphasised the importance of these resources: "It's clear that video is increasingly becoming the go-to format for delivering educational content and it's important to us that we're servicing the market in a way that resonates. We invest considerable time and resource into producing these videos, as well as our other technical content, in a bid to help both factors and garages navigate the increasingly complex world of emissions control technologies."

SCR technology, vital in reducing harmful emissions in diesel engines, works with diesel exhaust fluids such as AdBlue to significantly reduce nitrogen oxide (NO<sub>x</sub>) emissions.

The popularity and necessity of SCR<sub>s</sub> in modern Euro 6 vehicles are expected to drive further growth in this market segment.

BM Catalysts' commitment to providing education and support to the market extends beyond these videos, as it also offers downloadable technical posters and other guidance through its website.



# BUILT FOR THE CHALLENGE

## What goes into an FAI Steering or Suspension part?

The importance of safety-critical components has always been a driving force in FAI's development of a quality Steering & Suspension range. Trends such as heavier vehicles, larger alloy wheels and the subsequent lower profile tyres all equate to a level of excellence that's needed now more than ever. Just as we keep up with vehicle parc demand, we have also kept up with the processes that ensure the best possible product. What we deem as a successful range does not relate to competitor comparison, but an ethos of competency from start to finish.

**Design & Production :** All FAI Steering & Suspension components use bespoke CNC machinery and robotic welding to produce like-for-like replacement parts; adhering to pre-production technical specifications. Industry-approved material grades are used, along with anti-corrosive coatings, to ensure the highest quality of finished products.

**Manufacturing :** Our partnered factories are ISO TS16949 accredited, relating to the adherence to comprehensive processes throughout design, development and production – Heavily reducing variation and defects. FAI products are made in the same facilities that supply OEMs, with a capacity to produce over 50 million units a year.

**Testing :** At every step of the way, until an FAI part is delivered to a customer, we pride ourselves on the processes that ensure a hassle-free fitment and the longevity that results in satisfaction throughout the supply chain.

Factory testing rigs put all component designs through a battery of testing, checking for any weaknesses before the main production run is approved. Suspension arms are subjected to a 3-axis test and ball pin pull-out force; with all products exposed to corrosion and fatigue rigs.

By way of a triple check, our team of in-house product specialists always check new products upon arrival, ensuring all technical drawings match the specifications in the box.

## EV Focus: Tesla Arms - Model S & X

FAI were the first in the Aftermarket to offer the forward-lower arms complete with fitting bolts and is still one of just a few that offer the combination to customers. This offering isn't just a 'nice to have', but is a result of the original bolts needing to be cut away from the vehicle, in most instances.

The design of the Model S is such that the battery housing is in very close proximity to the lower arms, making it tricky to remove without going through the painstaking process of removing the battery compartment to gain access.

By simply cutting off the existing fixings and replacing them with the FAI kit, the job is done in no time, with the added benefit of a more complete repair having used a fresh series of fastenings.



# SHAFTEC – THE ART OF COMMUNICATION WITH FLEXRAY

In the fast-paced realm of automotive technology, staying ahead is essential for technicians tasked with steering rack replacements in vehicles equipped with FlexRay communication systems.

Andrew Ferber, Operations Manager for Shaftec says, “Recognising the inevitable growth in the aftermarket, we made the strategic decision to embrace FlexRay technology directly for steering rack replacements. Our commitment to extensive research and development ensures that our remanufactured steering racks are not only compliant, but ready to leverage FlexRay communication technology for reliable fitment.”

But exactly what is FlexRay? It is effectively a cutting-edge automotive communication protocol installed primarily in vehicles such as BMW, Audi and Mercedes. It facilitates high-speed and fault-tolerant data exchange between electronic control units (ECUs) in a vehicle. For steering rack replacements, its role is pivotal in maintaining precision and reliability.

It is vital that prior to steering rack replacement, technicians must ensure compatibility with the FlexRay communication system. Verification of adherence to specific protocols and standards set by the vehicle manufacturer is crucial for a seamless replacement.

The replacement of steering racks often necessitates recalibration of the vehicle’s systems, particularly those integral to the FlexRay communication network. Strict adherence to manufacturer guidelines is essential to uphold the precision of the steering system.

Proficiency with diagnostic tools is paramount during steering rack replacements. Technicians should use a compatible tool to check and rectify any communication issues, ensuring the integrity and functionality of the FlexRay network in the steering system. Also, adherence to manufacturer guidelines and information is essential, as the unique protocols of FlexRay may vary across vehicle makes and models, requiring technicians to consult specific guidelines for effective service.

“Shaftec has been working on this project for many years, which has required a massive amount of work in R&D, as well as greatly expanding the physical space being used within

our facility to accommodate for the differing technologies in steering. We made the decision not to use the bridging technology protocol, CAN FD, but rather went straight to FlexRay as CAN FD is not reversely compatible with traditional CAN systems. Where the two need to be used in the same system, a protocol converter is required. Shaftec can now read Electrical Steering Racks and Electrical Steering Pumps when they come in – as core or as a surcharge unit in return – before the remanufacturing process starts, and ensure the finished, fully remanufactured parts are compliant and able to use FlexRay communication technology when they leave us. This ensures reliable fitment without encountering electronic blockers.”

## The Shaftec FlexRay Process

- The core unit is visually inspected, checked for conformity to criteria and ID matched to OE numbers, manufacture dates and casting numbers.
- It is then connected to the test bench and powered up to establish communications.
- An automotive diagnostics tool is connected.
- The unit will then have operational parameters, and the following internal information checked: voltages, amps, speed sensor type and functionality, torque sensor functionality, vehicle speed, position sensors, angle sensors, codings, software ID, hardware ID, diagnostics, and if present, all trouble Codes (DTCs) are retrieved to assess the reasons why it was removed and to determine if a repair is required or not.



## CHARGING AHEAD WITH YUASA

### Product Review: Yuasa YCX Smart Chargers and Maintainers.



We took a quick look at the impressive Yuasa YCX range of battery chargers and maintainers and why we think they are a worthwhile investment for your workshop. From motorcycles to commercial and leisure vehicles, the Yuasa YCX range offers intelligent charging solutions for all types of batteries, including lithium-ion and LiFePO4.

Looking at the units, it's evident that the YCX range is well designed and robustly engineered to ensure they meet the strenuous demands of the workshop, but are also suitable for DIY motorists due to their ease of use and intuitive functions.

Features at a glance:

#### 1. Yuasa YCX1.5: Precision Charging for Motorcycles

- Seven-stage charging process for 6V and 12V motorcycle and powersport batteries.
- Compact size with clamp connectors for a streamlined plug-and-play connection, plus an integrated eyelet connection option.

#### 2. Yuasa YCX6 and YCX12: Automotive Excellence for Car & Light Commercial Vehicles

- Nine-stage charging and maintenance process for car and LCV applications.
- Compatible with various battery technologies, including lead-acid conventional, EFB, AGM, compatible lithium, and GEL.
- Self-activating maintenance mode for prolonged battery life, with a patented rejuvenation phase, designed to break down sulphation – a leading cause of premature battery failure.

#### 3. Yuasa YCXL12: Tailored Care for Leisure Batteries

- Specifically engineered for leisure batteries in caravans and motorhomes.
- Intelligent solution for seasonal storage, extending battery life during the off-season.
- Higher power settings for faster and more reliable charging; actively cooled for prolonged usage.

#### Key Points & Advantages of Yuasa YCX Chargers & Maintainers:

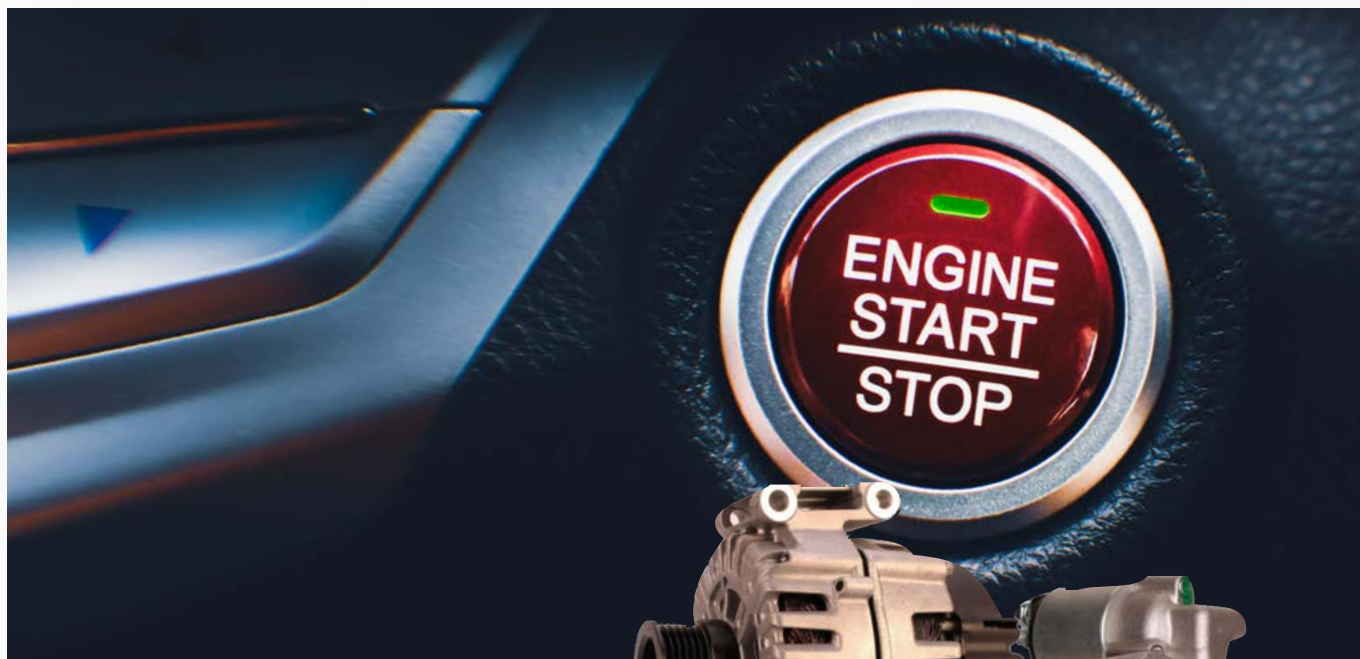
- Active cooling in YCX6, YCX12, and YCXL12 models for stable power output and extended service life.
- The patented rejuvenation phase to combat sulphation prevents premature battery failure (YCX6, YCX12 and YCXL12).
- Higher power settings for faster and more reliable charging.

In conclusion, the Yuasa YCX range is not just any battery charger; it's a necessity for workshops and vehicle owners who want to maintain their batteries, whatever the weather. Well worth the investment, in our opinion.

For more information on the Yuasa YCX range and how it can benefit your workshop, visit [www.yuasa.com/YCX](http://www.yuasa.com/YCX)



# STOP START SYSTEMS



Stop-Start technology is by no means new, in fact the earliest systems were first fitted to vehicles over 15 years ago, so demand for replacement units is on the increase.

Designed to meet ever more stringent emissions limits, the technology has been utilised by nearly all of the leading vehicle manufacturers, and was technically the first stepping stone from internal combustion to hybrid & full electric vehicles.

A typical Stop-Start starter motor has to work much harder than a standard unit. In heavy, queuing traffic, the system can restart the vehicle up to 27 times over a one mile distance. For this reason, heavy duty components are used during manufacture, so replacement units are often expensive, even for older vehicles.

Rollco supply a range of brand new starter motors and alternators, including Stop-Start units, manufactured to OEM standards and backed by a comprehensive 2 year warranty.

All units are fully tested throughout the manufacturing process, including;

- Extended running
- High & low temperature, -40c to 120c
- Salt spray tests for coatings
- Vibration
- Factory Stop-Start tests where applicable
- Material strength

Rollco also offer full technical support and training, ask for details.

- Brand new units
- Full 2 year warranty
- Manufactured to OEM standard

**All Rollco Starter Motors and Alternators  
are 100% BRAND NEW...**





**NEW**

# Screenwash at the touch of a button



Concentrated screenwash  
Freeze Protection  
-20°C

## Features & Benefits

- 205Ltrs Concentrated screenwash makes 615Ltrs of ready to use, increasing profitability
- Reduces packaging waste and recycling
- No spills or mess, avoids contamination from other chemicals or lubricants

Ready To Use Screenwash  
Freeze Protection  
-10°C approx

## Screenwash Mixing System

Push and hold button to dispense

No electrics, works by water pressure

Attach mains water and you're ready to go

**Buy a Polygard Screenwash Concentrate -20°C 205L and receive a Polygard Screenwash Mixing System\***

**\* Terms & Conditions**

Polygard Screenwash Mixing System is on loan and remains the property of Miswa Chemicals Ltd.  
Only to be used with Polygard Screenwash Concentrate -20°C.  
Customer responsible for the installation and maintenance of the unit.  
Promotional offer limited to one unit per business address.  
Jug and water hose connector not included.

**Limited stock! To secure your mixing system, call your local branch today!**



## TRUPART WIPER BLADE PROGRAMME

### SPECIFIC FIT FLAT BLADES

- 144 Specific fit flat blades including pairs.
- Direct OEM style replacement with fixed adaptor

### UNIVERSAL FLAT AERO BLADES

Universal flat aero blades from 14" to 32".

- Silicon infused rubber
- 5 Clips covering all applications
- Metal mounting bracket
- Universal spoiler design
- QR code / fitting instructions
- Introduced to vehicles 04>

### HYBRID WIPER BLADES

11 Specific fit hybrid blade references.

- Wiper blade technology change - Increased wiper pressure/  
screen shape
- Not interchangeable with frame blades as they fit different arms
- Fit modern vehicles 09> such as Vauxhall, Citroen, Hyundai, Subaru, Lexus, new Mini

### STANDARD FRAME BLADES

Standard frame wiper blades from 12" to 28".

- 1.25mm Metal frame
- Silicon infused rubber to protect against UV
- Clip fits all 3 arm types
- Metal rivets

Wiper blade refills for 24" and 28".

Frame blades with washer kits for 18" to 28".

- OE Style washer kits + pipes

Bespoke frame blades for BMW, Peugeot & Range Rover.

- BMW/VW applications

Curved wiper blades 19" and 22".

- VAG Group applications

OE Style spoiler attachment

- Plastic spoiler fits all frame blades exclusive to Trupart

### REAR WIPER BLADES

The largest range of rear blades available in the UK aftermarket with all blades designed to O.E. specification.

104 Rear blades - covering over 450 vehicle applications including - FIESTA 17>, FOCUS 18>, GOLF 20>, ID3 20, ID4 20>, ID BUZZ 22>, CUPRA BORN 22>, CLIO 19>, DEFENDER 19>, CEED 18>, PROCEED 19>, XCEED 19 >, C3 AIRCROSS 17>, ARTEON 20>.

Full specific fit range consisting of flat, metal and frame blade types.

### REAR WIPER ARMS INCLUDING REAR WIPER BLADE

The largest range of rear blades with arms currently available in the UK aftermarket with all blades designed to O.E. specification.

263 Rear blades with arms - covering over 280 vehicle applications including - MINI CLUBMAN F54 15>, MACAN 14>, FIESTA 17>, FOCUS 18>, NIRO 16>, CAPTUR 19>, GOLF HATCH 20>.

### SPECIFIC FIT AQUA SPRAY FLAT BLADES

- 6 Specific fit flat blade pairs with integrated water jet spray
- 3 Unheated and 3 heated pairs
- For Ford, Mercedes and Volvo applications

### DATA CATALOGUING

- Online catalogue with images and fitting guide
- Web catalogue smart phone friendly
- Comprehensive cross reference guide

### SUMMARY

- Fast developing range incorporating the latest technology
- The largest range of rear blades and rear blades with arms currently available in the UK
- Excellent levels of service and support
- A quality blade at a competitive price



## WHY CHOOSE GRANVILLE OIL?

In the pursuit of a carbon-neutral future, the UK faces the challenges of transitioning to electric vehicles, but is still very much reliant on internal combustion engines to bridge the gap. For many drivers, however, the reluctance to embrace electric vehicles is driven (excuse the pun) by concerns about range, charge point availability (and cost), and the time required to plug in and recharge.

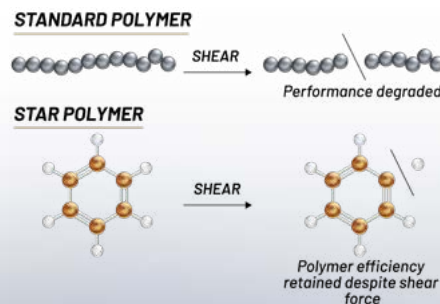
**Consequently, hybrid and traditional combustion-powered vehicles remain integral, propelling continuous advancements in engine technology to achieve higher power outputs and fuel efficiencies from smaller engines.**

Modern engines, particularly those in smaller vehicles, are engineered with tighter tolerances than ever, operating at higher RPMs. In the early 1990s, just three oils covered the majority of vehicles on the road at that time, 10W-30, 10W-40, and 20W-50. Fast forward to today, where ultra-low viscosity oils are needed to meet ever more stringent emissions legislation and to assist manufacturers in achieving higher power and torque figures from smaller capacity engines. These include 0W-20, 5W-20, 5W-30 and 0W-16 even 0W-8 for some petrol and hybrid applications, not to mention the myriad of manufacturer specific oils and approvals required to service modern vehicles.

This places an increased demand on lubricating oils to provide optimal performance, as the oil must maintain a thin yet robust film strength for effective lubrication. The challenge lies in ensuring the fluid's shear stability, resisting the forces generated by the engine's movement. Traditional viscosity index improvers, with long linear chains, offered cost-effective

thickening efficiency but rapidly degraded under high shear conditions, diminishing engine protection over time. To address this challenge, Granville performance fluids utilise star-shaped polymers, significantly enhancing resistance to shear forces and ensuring sustained engine protection throughout extended drain intervals.

**Illustration: Linear vs. Star Polymer**  
Employing industry expertise and cutting-edge technology, Granville's oils are meticulously crafted using premium base oils, Esters, and PAO (Polyalphaolefin) fluids, combined with advanced viscosity index improvers, antioxidants, and detergents. Their meticulous formulation guarantees optimum performance, engine cleanliness, and maximum fuel efficiency.



Traceability to the Minute Granville upholds the highest quality standards through its ISO-accredited quality management system. Traceability is not only maintained at the batch level, but is taken down to the minute details. Each Granville lubricant carries a batch number indicating the filling line number, batch date, and even the precise time the bottle was filled, or the box was completed. This commitment to traceability instils absolute confidence that the oil meets the manufacturer's recommendations, ensuring unparalleled precision and quality.



In an automotive landscape where mistakes can prove extremely costly, Granville is there to help protect your customer's cars and your business's reputation. Quality oil, using quality additives, and with full traceability. Can your business afford not to use a quality lubricant? Then, simply put, choose Granville!



# SILENCIO™

THE ORIGINAL



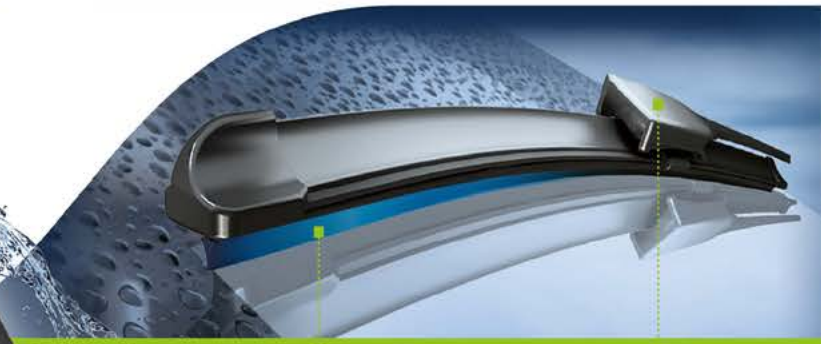
**Valeo SILENCIO™ Flat Blades** ensure perfect initial wiping quality and improved wiping efficiency over time thanks to Valeo VisioRubber™ innovation



**VISIORUBBER™**

Synthetic rubber for tearing resistance

Natural rubber for best-in-class wiping quality



**PERFECT FIT**

**OPTIMUM AERODYNAMICS**  
Asymmetrical spoiler

**VALEO BEST PERFORMANCE OVER TIME**  
Extreme resistance




Valeo technical support always available





Call us: 01527 838300


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Access a free complete technical support program online

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 [NGK UK YouTube](https://www.youtube.com/NGKUK)

 [instagram.com/ngkntk\\_uk](https://instagram.com/ngkntk_uk)

 [NGK Spark Plugs \(UK\) Ltd](https://www.linkedin.com/company/ngk-spark-plugs-uk-ltd)

 [ngkntk.com/uk](https://ngkntk.com/uk)



**IGNITION  
PARTS**

# UNLOCK POWERFUL PRECISE PERFORMANCE WITH NGK SPARK PLUGS

While spark plugs may seem like just a small component in the grand scheme of a complex modern engine, their impact on everything that makes your customer happy - power, MPG, and more, can't be overstated. That's why investing in premium spark plugs is not merely a choice; it's maximising performance and customer satisfaction.

Our precious metal spark plugs make the perfect choice for any workshop looking to unlock multiple long-term benefits. Our platinum and iridium technology offers a stable and powerful spark all while being less susceptible to typical wear and corrosion. This means that the customer can enjoy spark plugs that don't compromise on power, even during longer service intervals.

While precious metal spark plugs make the ideal service upgrade, our standard spark plug range still boasts market-leading ceramic technology for a great value and reliable option.

**Choose Excellence; Choose Precision;  
Choose NGK Spark Plugs.**

## TECH TIPS

- **Maximized Power Output:** Precision sparks lead to optimal combustion, translating to performance at your command.
- **Enhanced Fuel Efficiency:** Say goodbye to lost miles per gallon. Our spark plugs ensure that every drop counts.
- **Extended Engine Life:** Reduced stress on engine components means a longer and healthier life for your customer's beloved machine.
- **Our top tip - don't forget the basics, even when undertaking a fault investigation.** Thanks to the pivotal role spark plugs play in a correct combustion sequence, it's important to assess spark plug condition, application, and fitment if you're investigating engine or running faults. Issues like misfire could be the result of poor installation such as over or under torquing.



## INTEGRATED STARTER ALTERNATOR SYSTEMS IN HYBRID VEHICLES

Although vehicle manufacturers are on course to produce only fully electric models in the future, based on the emissions demands and targets set by governments around the world, the biggest percentage of vehicles are still powered by a conventional Internal Combustion Engine (ICE). Whether petrol or diesel, many technical innovations have been introduced to make these engines as clean as possible, more recently with some form of electrical mechanism built into the powertrain.



Variations on this theme include Hybrid, Plug-In Hybrid and Mild Hybrid. The traditional Hybrid system sees the vehicle powered primarily by internal combustion, with the electric motor taking over for a relatively short distance. As the battery runs down, the engine cuts in and recharges the battery and so on. Plug-In obviously allows the user to charge the vehicle manually, overnight, or as required. The recent announcement by the UK government to postpone the ban on new petrol and diesel cars from 2030 to 2035 will allow manufacturers to continue to produce ICE powered vehicles, no doubt alongside development of full Battery Electric Vehicles (BEVs).

Here we focus on Mild Hybrid, which sees many vehicles equipped with an Integrated Starter-Alternator (ISA) system, a technological advancement that has redefined the individual component functionalities. As well as the standard 12V starter battery, certain mild hybrids are fitted with a 42V or 48V battery which provides support to the main engine during various operations, such as starting, power augmentation, and acceleration. By supplying additional power during these high-demand situations, the ISA system aids in improving the vehicle's performance and driveability, whilst reducing emissions. The system also provides energy recovery during the braking process, a mechanism known as regenerative braking. This process involves the conversion of the kinetic energy, which is usually lost during braking, into electrical energy. This electrical energy is then stored in the battery for later use, enhancing the overall efficiency

of the vehicle. With the extra power available from the 42V/48V battery, other systems on the vehicle can be powered without the engine running, such as the AC system, further reducing emissions.

Another key function of the ISA system is its role in the START/STOP system. This system automatically shuts down and restarts the engine to reduce the amount of time the engine spends idling, thereby reducing fuel consumption and emissions. The ISA system ensures a quick and smooth restart of the engine when required, in as little as 400 milliseconds.

In summary, the evolution of the alternator and starter in hybrid vehicles into an integrated starter-alternator system has significantly expanded their roles, making them pivotal components in the hybrid system.



**AA7908 : ISA (Integrated Starter-Alternator)  
FITTED TO VARIOUS MAKES AND MODELS,  
E.G. CITROEN, DS, FIAT, PEUGEOT, TOYOTA  
& VAUXHALL**

**FITS MEDIUM SIZED CARS, SUV'S & LCV'S**

HONESTY INTEGRITY CAPABILITY



Super  
**Strong**

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Always  
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## TWO-STAGE TIMING BELT TENSIONING

Although Dayco is an original equipment (OE) supplier of both the primary and auxiliary drive systems to vehicle manufacturers around the world, its aftermarket division is also active in the independent service and repair sector, where it promotes best practice and provides technical advice and instruction to help workshops complete belt replacement efficiently and successfully.



### THE BACKGROUND

Part of this process is to react effectively when problems appear, quickly diagnose why they are occurring and then highlight the issues to workshops and technicians, so they are able to follow the correct fitting procedure during belt replacement, which will increase customer satisfaction and avoid unnecessary warranty claims.

### CITROËN BERLINGO 1.6 HDI AND PEUGEOT EXPERT 2.0 HDI

A perfect example is the two-stage tensioning process that must be carried out when replacing the timing belt on the 1.6 and 2.0-litre HDI engines that are widely used by Fiat, Ford, PSA and Vauxhall, in many of their popular models in both passenger car and light commercial vehicle applications. Although the consequences of not following the procedure may not be immediate, because both units are of an interference design, the effect of a subsequent belt failure is likely to be catastrophic to the engine. Looking first at the 1.6, in this instance in a Berlingo, the process is as follows: Once the replacement belt has been installed and is taut between the sprockets, the new tensioner must be turned anti-clockwise until the pointer is in its first position and the bolt tightened to 30Nm. After removing the locking/aligning tools, the crankshaft must be turned clockwise six complete rotations and the tensioner reset to its second operational position and the bolt retightened to 30Nm. The crankshaft then requires two more clockwise rotations to the setting position, where the locking/aligning tools should be refitted and the position of the tensioner checked again to ensure it is aligned correctly. If it is not, the entire procedure needs to be repeated until it is correct.

Following a similar pattern, the 2.0, which in this example is fitted to an Expert III, requires the new tensioner on the replacement belt to be turned anti-clockwise and set to its initial position and tightened to 21Nm. The technician then has just five minutes to remove two of the locking tools, refit the lower belt cover, crankshaft position sensor, crankshaft pulley, bolt and spacer and tighten to 50Nm, and then remove the final three locking/timing tools, rotate the crankshaft clockwise six complete turns to the setting position, refit the three tools, slacken the crankshaft pulley and turn the tensioner clockwise until the pointer aligns with its operational position and retighten to 21Nm. If however, the pointer passes this position, the tensioning procedure must be repeated until it aligns.

### IN SUMMARY

What these examples demonstrate is that even a scheduled service requirement on comparatively common engines requires technicians to follow a specific procedure, not apply a general rule.

It is for this reason that Dayco recommends those with the responsibility of undertaking the work to not only use OE quality replacement components, but also allow themselves five minutes of preparation before they start, to check the technical data that the workshop subscribes to and find the correct, engine specific procedure they need to follow to ensure they can complete the job successfully, first time.

For more information regarding the OEM quality power transmission products in the Dayco range, please email: [info.uk@dayco.com](mailto:info.uk@dayco.com) or visit: [www.daycoaftermarket.com](http://www.daycoaftermarket.com)





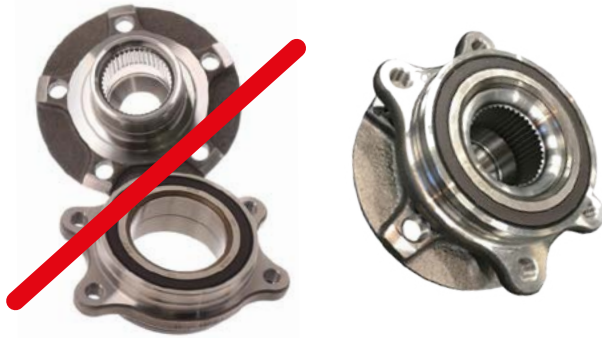
# Time is Money!

Reduce labour times by up to 50%  
by fitting SKF pre-assembled  
hub bearing kits

## SKF Pre-assembled wheel bearing kits



Instead of buying the wheel bearing alone and handling the flange for dismounting and mounting, change the assembly pre-mounted.



SKF Pre-assembled hubs offer a technology solution for challenging press work by offering all new components ready to install in a pre-pressed hub unit. The SKF solution saves you time and supplies OE quality components with factory precise assembly.



This provides technicians with a faster repair solution as components are already assembled, and:

- Eliminates complex press work
  - No need for special tools or trying to make the wrong tools work

- Reduces the need for multiple components and extends the life of the new bearing
  - New seals, flange, bearing module, and bolts all included
- Allows for easy installation, saves time and circumvents installation damage using a preassembled unit
  - Pre-pressed and ready for bolt on assembly
- Saves vehicle down time and labour costs
  - No need to send out for press work or spend time doing it yourself
- Ensures safety with SKF factory test
  - OEM Tests conducted

### Summary

Save time with SKF Pre-assembled wheel bearing kits for a quick one-piece exchange procedure, ensuring easier and faster replacement and eliminating all mounting issues.

- NO need to remove the flange
- NO need to remove the inner ring from the flange
- NO need to inspect and clean the flange
- NO need to press the flange into the new bearing



# MODERO

## WHEN IT COMES TO ENSURING OPTIMAL BRAKING PERFORMANCE AND VEHICLE SAFETY, MODERO STANDS OUT AS A LEADING AFTERMARKET BRAKE CALIPER SUPPLIER.

Modero represents quality and reliability, which means workshops can fit with full confidence, and here are some of the reasons why!

All Modero brake calipers are supplied with complete quality assurance after rigorous testing.

- 100% Brand New Units: Modero takes pride in delivering entirely new brake calipers, assuring workshops receive the latest automotive braking technology.
- 2 Year Warranty: Modero brake calipers are supplied to you with a generous 2-year warranty.
- Manufactured to OE specifications and standards: Modero calipers are meticulously tested and manufactured to OE specifications and standards with TS16949 certification. TS16949 sets the Quality Management System requirements for automotive suppliers, ensuring the highest standards of quality and consistency throughout the automotive industry.
- High and Low-Pressure Tests: Every Modero caliper is pressure tested before leaving the factory, providing hassle free fitment and reassuring customer safety.
- Extreme Temperature Testing: From scorching summers to freezing winters, Modero calipers are designed to excel in diverse temperature conditions.
- Salt Spray Testing: Resistant to corrosion, Modero calipers

are built to withstand the challenges posed by salt on the roads, enhancing their longevity.

- Vibration Test: Modero calipers are subjected to vibration tests to ensure stability and reliability during various driving conditions.
- Material Composition Test: The components of Modero calipers are carefully tested to guarantee the highest quality materials, contributing to their overall durability.

Modero brake calipers represent quality and performance, setting an all-important high-bar standard within the automotive aftermarket braking sector. With their continued commitment focusing on innovation, adherence to OE standards, and a commitment to rigorous quality testing, Modero is a brake caliper you can trust!

Available from your local branch today.



# GRANNING GROUP

## HIGH QUALITY REPLACEMENT AIR SPRINGS FROM GRANNING - FOCUS ON BMW!



BMW X5 E70 X6 E71  
REAR LEFT / RIGHT



BMW 5 E39  
REAR



BMW 5 E61  
REAR LEFT/RIGHT



BMW 5 F11 GT F07  
REAR LEFT / RIGHT



BMW 7 E65 / E66  
REAR



BMW X5 E53 REAR  
(SPORT SUSP)



BMW X5 E53  
REAR

Granning Air Springs are a quality replacement, engineered to provide optimal performance and reliability. Backed by an industry-leading 3-year warranty, Granning's commitment to quality means you can fit with confidence.

### OTHER MAKES AVAILABLE

- AUDI • BMW • CITROEN • LAND-ROVER
- MERCEDES • PORSCHE • RANGE-ROVER • VW

**When it comes to Air Springs, call us today  
and insist on Granning!**

# KYB: ELECTRONICALLY CONTROLLED OE SHOCK ABSORBERS FOR VOLKSWAGEN GROUP



*Our Precision, Your Advantage*

**In the UK, KYB is the number one supplier of Original Equipment shock absorbers to cars leaving production lines. We take a look at KYB's latest OE development, electronically controlled shock absorbers for the Volkswagen Group.**

Electronically controlled shock absorbers from KYB Corporation have been adopted by Volkswagen Group to equip new Tiguan, Passat Variant, SKODA Superb and Kodiaq models with the new DCC Pro (Dynamics Chassis Control Pro). The introduction into the market is scheduled during the first quarter of 2024.

DCC Pro systems use double valve shock absorbers to independently control the extension and compression oscillations caused by a car body and wheel movements while driving. These valves react to road conditions and driving situations in a few milliseconds.

The ECU activates the respective extension and compression solenoids to adjust independently the internal pressure of the shock absorber to suit road conditions and the driver's preference (from comfortable to very sporty). The damping characteristics are automatically adjusted in a continuous way, which in conjunction with the full independence between extension and compression movements, brings the vehicle

comfort and control to the highest level. This provides safe, dynamic manoeuvrability and an unprecedented 'flying-carpet' ride experience.

KYB and the VW Group have been working together for several years, including the sporty Audi RS suspension, and since then have co-operated extensively for the VW brand. This new development is part of KYB's policy to further strengthen its partnership with the German car manufacturer.

The hard development and validation process engineered between KYB and Volkswagen teams has made it possible to offer this technology, which up to now was only imagined for the premium segments.

## **Bringing OE Quality to the Aftermarket**

Whilst the shock absorbers used on the DCC Pro are not yet available to purchase for the aftermarket, KYB ensures that this high standard of manufacturing applies not only shock absorbers intended for use by vehicle manufacturers, but also to the aftermarket. The KYB product you buy is manufactured in the same factories, using the same high-quality materials and subject to the same rigorous testing procedures as their OE counterparts. There is only one difference between the two - the tuning of the valves inside the shock absorber. This is because KYB aftermarket product is fitted to older cars, meaning the new shock absorber will be fitted amongst older, fatigued steering and suspension parts. The valving on KYB aftermarket shock absorbers are finely tuned to compensate for this. KYB aftermarket product therefore retains the optimum quality demanded by global vehicle manufacturers, but is tuned to meet the needs of the aftermarket customer.



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## ADVANCED F1 FLUID TECHNOLOGY NOW AVAILABLE FOR EVERYDAY CARS

*David Aldous, OEM Business Development Manager at Petronas Lubricants*

Technological motorsport advancements are helping everyday drivers worldwide enjoy new levels of engine performance



As the pinnacle of motoring technology, it's no surprise that numerous innovations first developed in Formula One have slowly trickled into the ordinary road vehicles we drive today. Take the carbon fibre chassis first pioneered by the McLaren team in the 1980s, or even our steering wheel radio controls that began life in F1 as engine switches.

However, one area of innovation in which F1 might appear to be lacking is maximising engine efficiency. After all, the main aim within F1 is simply to build the fastest car, with other goals seemingly a secondary concern. But that all changed with new rules introduced by Formula One's governing body in 2014.

Ever since Formula One cars have been using hybrid components to minimise fuel consumption, harnessing their own energy produced by the car during a race and redeploying it as part of the power unit's output, it has been advising the development of everyday road cars. Recently, in 2022 the rules in F1 racing were tweaked further to mandate more efficiencies and will change again in 2026, by which time cars must use significantly less energy and produce net-zero exhaust CO2 emissions.

In response to these rule changes, the accessories that support F1 power units, such as engine lubricants, are seemingly more advanced than ever. One high-profile example of this is PETRONAS Syntium, the engine oil first used by the Mercedes-AMG PETRONAS F1 Team in each of their eight consecutive Constructors' Championship-winning seasons.

Most modern engines only convert around 33% of their potential fuel energy into power, meaning much of the useful energy produced by cars globally is sadly lost to engine inefficiency. Plus, excessive heat can also damage critical engine parts like turbochargers, pistons, and bearings, causing costly breakdowns. Here's where PETRONAS Syntium saves the day.

Through a 2022 reformulation and the addition of new 'CoolTech+ Technology', the engine oil now offers 37.8% stronger protection against the wear of critical parts than previous formulas, preventing engine deposit build-up to extend parts life and lower maintenance costs.

It also provides up to 68% higher oxidation resistance, controlling sludge, delaying oil thickening, and maintaining a stable, protective film for maximum engine performance. And with its ability to control heat by reducing friction, PETRONAS Syntium contributes to cut fuel consumption by up to 3%, which ultimately means less emissions, thus saving motorists money and minimising the environmental impact of driving.

Fausto Lupone, Automotive Sector Expert, Technical Service EMEA at PETRONAS Lubricants International explains: "CoolTech+ technology means whatever the road throws at your engine, it now wastes less energy and maximises efficiency. With enhanced engine protection, PETRONAS Syntium protects critical parts to deliver optimal performance every time." Drivers can learn more about PETRONAS Syntium on the explore-cool.com content hub, which features exclusive tools, guidance, and updates on how to reduce the emissions and fuel costs of your vehicle.

With technological motorsport advancements helping everyday drivers worldwide enjoy new levels of engine performance, it's hard to say what the next transformation that F1 brings to everyday driving will be. But for now, this journey of a thousand miles begins with a single step: PETRONAS Syntium.





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