

Brakepoint news

THE **FERODO** BRAKE SPECIALIST NEWSLETTER



**FREE POSTERS FOR ALL MEMBERS!
COMMERCIAL VEHICLE BRAKES CV
THE HISTORY OF FERODO BRAKES
DIAMOND COATED PISTON RINGS
MEMBERS ONLY...AND MUCH MORE!**



What's in it for you?



Welcome to the second edition of **Brakepoint News**. We've got more interesting stories, more items to pass the time while you're having your tea or coffee break, and – enclosed with the issue – some more helpful items for your business.

Your news, your views, your newsletter

Brakepoint News is the newsletter exclusively for members of the Ferodo Brake Specialist Club – like you. The next issue will be sent to you free, in September. So if you've got anything you want to tell us about the newsletter, about Ferodo, about brakes (hints, tips or stories) or about the garage business in general, now's the time to write.

You could even win a prize if the Editor thinks what you send is the most interesting thing he receives for that issue. And every time you write, email or return a questionnaire, your name will go in the hat for our **Annual Prize Draw**.

On page 5, we've got feedback on the last issue from Birchwood Garage in Yorkshire. Do you agree? Disagree? We'd love to know. Just drop us a note, letter, ideas, suggestions or stories to: **The Editor, Brakepoint News, Ferodo, Freepost York YO19 5ZZ.**

Brakepoint News is all about the business you're in, and is here to help you be one of the best in your business. So read it, enjoy it, and if you've got something you want to say, send it in – you don't even need a stamp!

Members only

As a valued member of the Ferodo Brake Specialist Club, and because you use Ferodo Brake parts, you automatically receive a regular copy of Brakepoint News, together with the free promotional material we'll be enclosing every issue. This is designed to help you build your business, so if you find you need additional copies, please call us on **01274 848333** to place your request.

This issue, we're sending you two Ferodo technical information posters for your workshop/reception or waiting area, plus some useful customer leaflets.

- The first poster details brake pad fitments to a range of popular SUV's.
- The second poster is a diagnostics "Trouble Tracer" guide to common brake problems, their effects, and of course the remedy. This is particularly useful in helping explain problems you come across to your customers.
- The Original Equipment leaflets keep you informed of popular new models which are factory equipped with Ferodo brake pads and the part numbers you should order when they need replacing. Once your customers find out that their car was originally equipped with Ferodo parts, they're sure to insist on genuine Ferodo replacements.



Free posters!



Truck Stop



Unless you're a garage that specialises in this sort of thing, it's not often you're going to find a 40 tonne truck waiting to have its brakes serviced. But the company you rely on for pads and discs for cars is also a major player in the world of commercial vehicle brakes.

Now with no fewer than 135 commercial vehicle brake discs in our range, Ferodo is one of the leading suppliers to this market, and as you would expect our brake discs are developed and tested for complete compatibility with our brake pads.

Ferodo Premier pads are made from OE quality materials and designed specifically for each vehicle's braking system to give constant braking performance under all temperatures and conditions. Every set of Ferodo brake pads and discs deliver the best possible combination of performance, comfort and ultimate driveability, every time.

And we're not just manufacturers, but innovators too.

Our CV C.V.

Ferodo's long and successful history in commercial vehicle brake products includes several firsts.

For example, Ferodo was the first company in the world to introduce asbestos-free linings to the commercial vehicle sector. Our commercial vehicle credentials also include the first wear step indicators, and we're still the only manufacturer to use these on full-length linings.

But we're always looking for new ways to improve our products and commercial vehicle safety – like the latest Ferodo air brake pads with cast iron backplates and moulded "V groove" in the friction material.

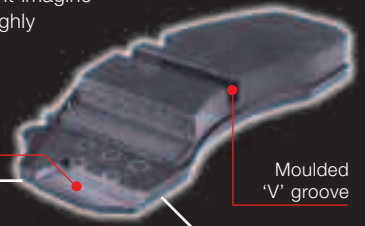
This patented technology from Federal-Mogul (Ferodo) has been developed to improve the thermal efficiency of the brake pads by affording better heat dispersion.

➤ The cast iron backplate represents the next generation of CV brake technology. By bonding the friction material directly to the specially designed backplate, outstanding pad integrity is achieved. Cast iron is lighter than steel and offers better resistance to corrosion, and being more thermally efficient it reduces the transfer of heat to rubber boots and seals in the brake caliper.

➤ The V groove design helps eliminate excessive material stresses, which can cause the friction material to crack under heavy braking, which as you might imagine could be highly dangerous.

Cast iron backplate

Moulded "V" groove



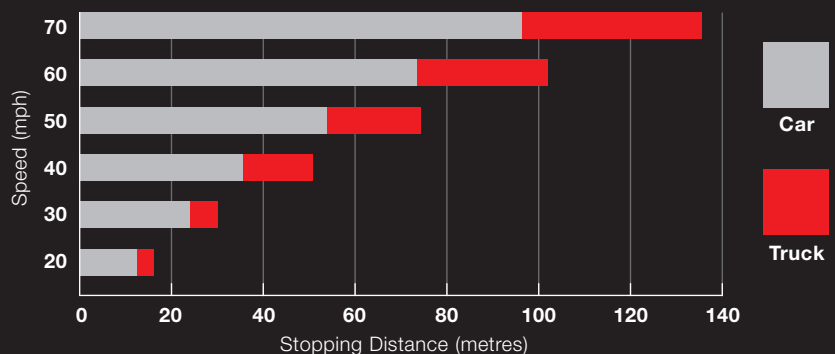
Non-stop testing

All Ferodo commercial vehicle brake discs are put through tough metallurgical tests to make sure they're consistently cast, and resistant to cracking – which can lead to failure on the road. Disc thickness variation is kept to an absolute minimum, and there are extremely high tolerances for wheel stud location built-in, to ensure optimum brake performance, reduced wear, and minimised judder and noise.

All of which is good to know next time you find a 40 tonner parked up outside wanting new discs, or when you're next driving down the motorway with an arctic filling your rear-view mirror.

The truck stops here

Take a look at the difference in stopping distances between cars and trucks and you'll see why good brakes are so important to truckers – and why so many of them insist on Ferodo brakes.



Source: Car: Highway Code, Truck: James Madison University, USA. (Truck unloaded except for driver on dry hard road).



Braking news

There's no stopping them



From the days of the horse and cart and the wooden block brake, to today's highly specialised, highly effective brakes with ABS, the story of brakes and brake materials is one of constant development and improvement. And Ferodo was there at the beginning.

➤ An early break

Though the horse and cart had used very basic brakes, the steam engine created the need for something more powerful. A young engineer from Derbyshire called Herbert Froad rose to the challenge, setting up a small business in his shed in 1897 to produce brakes. He called his company Ferodo, from an anagram of his name.

What all brakes need is friction. The copper linings and metal discs in use at the time certainly created friction, but they also produced an ear-piercing squeal. And – good news for brake specialists but not for motorists – they needed changing every 100 or so miles. Herbert experimented with all kinds of friction materials and resins to try to solve the problem, until he hit on the idea of asbestos.

This solution was so simple but so effective, it became the basis of all friction brakes until nearly the end of the twentieth century.

The 10,000 mile brake service had arrived.

➤ Why asbestos had to go

Asbestos had seemed like the perfect solution for brakes, as it was hard wearing, heat resistant and lightweight.

Brake linings need a heat-resistant material that offers plenty of friction. They're usually mounted on a solid metal backing, using either strong adhesives or rivets. When the linings touch the moving discs, large amounts of heat are produced, which is why the lining needs to be heat-resistant. Asbestos was a very effective answer, until the dangers of asbestos dust were realised.

With asbestos no longer considered safe to use, the search was on for alternatives. By 1988 asbestos-free pads were beginning to enter the market. Many of these used Kevlar formulas as their asbestos replacement.

➤ An early break

Despite its problems, asbestos was a very effective brake lining material and replacing it has not been easy. At the same time as asbestos was being phased out, front wheel drive was coming in. This means front brakes get even hotter, so brake linings have to be even more heat-resistant. In their search for the answer, manufacturers turned to semi-metallic linings.

However, on their own they can be noisy. Which is why other combinations of materials have now been developed – containing ceramic and other fibres, carbon, titanium, copper and other materials – to reduce noise, and improve braking performance at the same time.

As well as searching for a single solution, manufacturers have developed application-specific materials. After all, what works well for braking a Mini probably won't be good enough for an off-road 4WD.





► Achieving the ultimate

A brake lining material that works for all vehicles and meets all the demands of manufacturers and users is the ultimate goal. Unfortunately meeting one demand probably means compromising on another.

The ultimate is a material that is quiet in use, has great stopping power and fade resistance, and lasts a long time. However if you want – for example – quieter brakes, then the chances are that the material won't last as long.

At least, that's how it looks at the moment. But Ferodo is still at the forefront of brake development, and you can rely on us to be the first to come up with the solution everyone's looking for. Just like Herbert Froad did, almost 100 years ago.

What happened when

- 1906 Woven brake linings
- 1908 Asbestos brake linings
- 1920 Hydraulic brakes
- 1927 Vacuum brake boosters
- 1955 High boiling point brake fluids
- 1958 Cerametallic pads for high performance applications
- 1959 Self-adjusting brakes for passenger vehicles
- 1969 Anti-skid (now known as ABS)
- 1979 Semi-metallic disc pads
- 1985 Traction control
- 1988 Asbestos-free pads
- 2000 Ceramic-enhanced friction formulas
- 2002 ABS becomes standard on entry-level cars

► Disk or drum?

The disk brake is the best braking solution yet invented. Disk brakes are used to stop everything from cars to locomotives and jumbo jets. Why are they so good? Because they wear less, are less affected by water, are self-adjusting and self-cleaning, and are less likely to grab or pull.

So why do we still have drum brakes?

Because drum brakes are a cheaper solution for the rear wheels. This is because the rear wheels are where the parking brake is applied, and to add a mechanical parking brake to a drum brake simply means adding a lever. On a disk brake, it would mean adding a complete mechanism.

Braking advice

This comes from the 1909 American Cyclopaedia of the Automobile. Brakes may have changed, but the way we should use them hasn't!

“Good driving in traffic is shown by making the minimum use of brakes. The strain on passengers amounts to intense nervousness when the car is constantly driven so that the least change of direction or speed by the vehicle in front results in the violent application of the brake.”



Members only



“Happy Birthday to you”

Not all our members want to claim their box top collector Rewards for themselves.

Who would want 350 Ferodo box tops for their birthday? Well, let's be honest: nobody. But convert those into a Sony PlayStation Portable and you'll have kids – and plenty of adults too – ripping off the wrapping paper at top speed.

That's just what Simon at the **Car Craft Test Centre** in Hanley, Staffordshire thought as his son's birthday approached. So, with 350 box tops under his belt, he contacted us to claim his Sony PSP. The only snag was he contacted us on the Thursday before his son's birthday on the following Tuesday. Could we deliver in time?

For such a special occasion, no problem. In fact, the Sony PSP arrived on Monday 24th – in plenty of time for Dad to have a play before his lucky son got his hands on it!



Good things happen to members of the **Ferodo Brake Specialist Club** – whether it's rewards for purchases, special deals, or just the help and support that comes from a close working relationship with Ferodo. Oh, and prizes of course: in every issue and in the annual Brakepoint News Prize Draw. All you have to do to enter is write in.

A chance to Excel

The **Ferodo Brake Specialist** network is full of garages with real expertise in brakes, and a real feel for customer service. **Excel Automotives, near Chesterfield in Derbyshire, is just one of them.**

Mel Ainger and Phil Bradley, the two partners in the business, set up Excel Automotives 10 years ago. As well as being Ferodo Brake Specialists they are a service and repair garage and an engine re-manufacturer.

A typical week could see a family car coming in for a service, a Lotus requiring a high performance set up, a classic car dropping in for some work and – at the other end of the scale – a one or two year old vehicle still under warranty.

“We want to see more customers with new cars”, says Phil, now the Block Exemption rules change means they don't have to go to the dealer. “We tell them we will fit OE

specification parts, do everything the dealer would do, but for half as much.”

Those OE spec. parts include, of course, Ferodo brakes, and the Ferodo sign outside is one of the first things a customer will notice on arrival at the garage.

“Because we fit Ferodo, our customers don't get brakes that squeal, and because we are part of the Ferodo network, we get preferential prices”, explains Mel. “There's an incentive scheme for us and from a customer point of view there is a lot of satisfaction.”


There's satisfaction for Phil and Mel too, with the new Ferodo Brake Specialist package including new software with a pricing package, a deeper product range, stronger than ever marketing support, and technical help.

“It's a good brand with nothing but positive benefits”, concludes Mel. Just like Excel Automotives, in fact.

A rewarding Reed

Steve Reed of Birchwood Garage, Yorkshire, is one person who's glad he read the last issue of Brakepoint News. Until then, Steve hadn't been aware of the box top rewards scheme, so he dreads to think how many valuable rewards he must have thrown in the bin. However, he's now a dedicated collector.

Steve was also pleased with the customer leaflets provided to Ferodo Brake Specialists – particularly the information on brake squeal. “I think our customers will find it very informative”, said Steve.

 Informative customer advice leaflet supplied free with issue 1 of Brakepoint News.



Crossword solution

Across:

1. Dip; 3. MPV; 5. Skid; 6. A Cat; 7. Morse; 8. Tip; 10. Pint; 11. Ka; 13. NASCAR; 16. Range; 17. Nil.

Down:

1. Draw; 2. Diamonds; 4. Veteran; 5. Stopping; 9. Wears; 12. Pan; 14. AE; 15. Rim.

So-Doku Solution

7	3	4	6	8	2	1	5	9
6	1	9	3	7	5	4	2	8
5	2	8	1	9	4	7	6	3
4	6	3	5	1	8	2	9	7
8	7	2	9	4	3	6	1	5
1	9	5	7	2	6	8	3	4
9	4	7	2	5	1	3	8	6
3	8	1	4	6	9	5	7	2
2	5	6	8	3	7	9	4	1



Meet the family

In every issue of Brakepoint News we take a closer look at some of the other products or brands in the Federal-Mogul family – because there’s a great deal more to us than just Ferodo brakes. For instance did you know that, through Goetze, we make diamond rings?



A jewel in our crown

Darling, you shouldn't have!

They're not the kind of diamond rings you would give to your girlfriend. But they are the first of their kind in the European Aftermarket. Goetze Combustion Ring Sets, as supplied to Mercedes, are diamond-reinforced, to help cut fuel consumption and emissions for diesel engines.

Today's efficient diesels run at the kind of ignition pressures and high temperatures that need a tough compression ring to take it. A few years ago, Federal-Mogul developed the chromium ceramic coating (CKS) for better scuff resistance and less coating wear. For most of today's engine generations, this is still a great solution.

But as engine service intervals get even longer, operating temperatures rise even higher, and engine lubrication gets less, there's a need for a new and even tougher coating system. And that's where Federal-Mogul and the Goetze brand come in.

Diamonds are forever (almost)

By mixing ultra-fine particles of diamonds in with hard chromium, Goetze has created a piston ring running surface that lasts and lasts, even in the tougher environment of next-generation engines.



Up to around 500°C, the Diamond Coating (GDC) system has a scuff- and wear-resistance much higher than the chromium ceramic coatings that are widely used today. And when the going gets really tough – under high pressure and very high temperatures – the diamond turns into graphite which works even harder in these conditions.

But forget the scientists. What does it all mean for the mechanic?

Basically, it means that GDC-coated piston ring running surfaces have lower wear rates and higher scuff resistance than chromium coatings and chromium ceramic coatings. In tests, they've performed up to four times better than the usual coatings. And scuff resistance is just as impressive.

What does this mean to the vehicle owner?

Lower fuel consumption, lower emissions, and fewer problems between services, even with today's longer service intervals. Looks like diamonds are a driver's best friend.



GOETZE



America's number 1

The fastest growing steering and suspension brand in Europe is already the number one in America – and of course it's another member of the Federal-Mogul family. It's called Moog, and its 2006 Chassis Components Catalogue has just recently been issued.

With 580 wishbones and 254 stabiliser link bars in the range, the Moog catalogue now features more than 2300 part numbers, covering over 6,000 applications, including the latest popular models and Japanese and Asian vehicles.

Competitively priced and premium quality, Moog parts match OE parts for performance and

lifespan, and they're guaranteed for two years – which means you can fit them with complete confidence. They're also approved by Nascar – the US National Association for Stock Car Auto Racing – so you know they're tough and reliable.

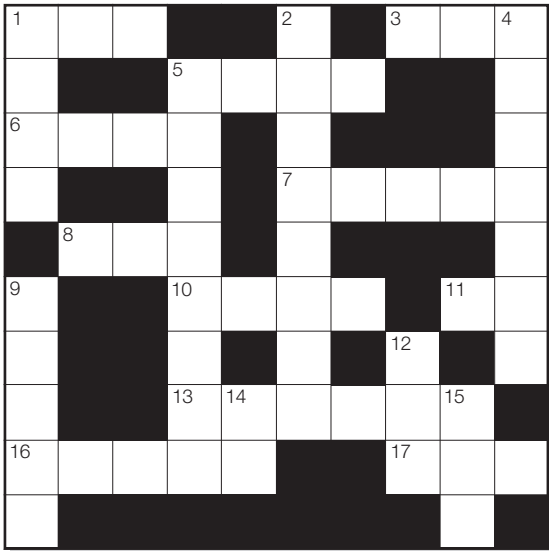
The new catalogue is easier to read and use than previous versions, and includes photographs for almost all the parts included. There's an updated illustrated buyers' guide, and cross-reference section. So if you need chassis components, now you know where to find America's number 1 brand – and you don't have to go to the States to find them.





Take a brake!

CROSSWORD



ACROSS

- 1. You do this with headlights (3)
- 3. Multi-Purpose Vehicle (3)
- 5. Leave a mark (4)
- 6. Slang for Jaguar (1,3)
- 7. Code, but not for the highway (5)
- 8. Advice or cash from a satisfied customer (3)
- 10. Pre-metric oil measurement (4)
- 11. It's a Ford (2)
- 13. National Association for Stock Car Auto Racing (6)
- 16. All Ferodo products (5)

17. Poor score (3)

DOWN

- 1. You don't have to, to win it (4)
- 2. Driver's best friend? See page 6. (8)
- 4. Old car or old soldier? (7)
- 5. This distance is in the Highway Code (8)
- 9. A Ferodo pad does this more slowly (5)
- 12. Where to go to 5 Across (3)
- 14. ...Payen (2)
- 15. Edge of a wheel (3)

(Solution on page 5)

SU-DOKU

						1		9
6			3	7	5			
	2	8	1	9		7	6	
	6				8			
8			9		3			5
							3	
	4	7		5	1	3	8	
			4	6	9			2
		6						

Fill the grid with the numbers 1 to 9 so that each row, each column and each 3x3 block contains all the numbers 1 to 9.

(Solution on page 5)

A first, unfortunately.

The man who built the world's first "car" can also lay claim to a first he probably isn't so proud of. Step forward Monsieur Nicolas-Joseph Cugnot: builder of the world's first "self-propelled mechanical vehicle."

M. Cugnot put the first nail in the coffin of the horse and cart in 1765, when he started experimenting with working models of steam engine powered vehicles. These weren't intended for nipping down to the shops, but for hauling heavy cannons for the French army. Hopefully they never needed to make rapid advances or surprise attacks, as Cugnot's three-wheeler could only manage 2.5mph, and had to stop every fifteen minutes to build up more steam.

Even so, King Louis XV was happy enough with our man's work to award him a pension of 600 francs a year.

In 1770 Cugnot – starting the trend which car manufacturers have followed ever since – built a new, improved model. This still had only three wheels – not much improvement there, then – and was steered by a tiller. However, there wasn't much competition in those days, so this was a vehicle that would pull the girls and make the neighbours envious, as Cugnot flashed past, wind in his hair, at the speed of an arthritic tortoise. He also didn't have to worry about clever branding and a fancy model name, so he called his steam-powered stallion a "fardier à vapeur", or "steam wagon". Not taking any chances with the Trade Descriptions Act, was he?

But as so often happens with flash boys and their cars, it was all to end in tears. Which brings us to M. Cugnot's second "first".

Not content with getting his name into the history books as the builder of the world's first automobile, he had to go and spoil it all with a footnote we're sure he'd prefer was forgotten.

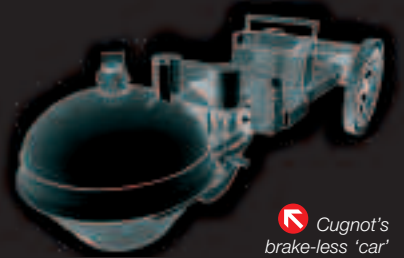
You see, despite coming up with a new, improved version of his wagon, Cugnot still didn't introduce the improvement

which might have been the most useful: brakes.

Maybe he only ever went uphill. He certainly didn't have traffic lights – or other automobiles, come to that – to worry about. Or perhaps he thought 2.5mph wasn't fast enough to cause him any problems. Either way, the combination of dodgy tiller steering and full steam ahead meant that in 1771 his steam wagon had a nasty encounter with a brick wall, in what was the world's first recorded automobile accident.

And it was all downhill after that – so again, brakes would have been useful.

One of his patrons died and the other was exiled. Which meant there was no more money to fund Cugnot's experiments and, just like his vehicle, his development programme also hit a brick wall. But perhaps that was a good thing. Imagine if we'd gone off down his route of automobile evolution. Improvements over the years would mean we'd now all be driving steam powered three wheelers at 70mph, our hands gripping the tillers for dear life, and wondering when someone would get round to inventing brakes.



Cugnot's brake-less 'car'

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