

The Importance of Brake Fluid Replacement

Brake fluid needs to be replaced every two years, in compliance with manufacturer's recommendations, regardless of vehicle use. However, there are special testers that allow the fluid to be checked regularly, ensuring braking safety.

Braking components are possibly the most important safety items on a vehicle, so it is vital to know how and when they should be serviced. Excessive brake pedal vibration, for example, could be the result of brake disk warping, and replacement of these parts can provide an additional 80,000 to 100,000 km of driving. Strange or squealing sounds while braking could be a sign of brake pad wear; not to worry though, as they are simple to replace and will function for another 40,000 to 50,000 km of safe driving.

There are, however, some critical safety components that are not always considered. Brake fluid is one of the easiest parts of a vehicle's braking system to replace, yet is one of the most often overlooked. Over time, drivers can become accustomed to sub-optimal brake performance, which leads to neglect of the entire system. Drivers may forget to replace brake fluid, but sometimes mechanics do, too. Replacement intervals should not be solely mileage-based (replacement is usually suggested every 40,000-80,000 km), but age-based. It is advised that an inspection be performed every two years due to the fluid's tendency to absorb moisture, which in turn affects its performance. Low cost pen testers are never 100% reliable, as they mostly analyse the conditions of the brake fluid by measuring its conductivity, so what can be done?

Brake Fluid Testers such as the one manufactured by Ferodo® have transformed the procedure and provide reliable test results. These testers directly measure the boiling point by heating the fluid and generate repeatable results. One of the main problems with brake fluid is 'vapour lock,' which can easily occur during normal vehicle use; deterioration of the fluid leads to a reduction in its boiling point. This produces dangerous air bubbles inside the braking system, which can be compressed and therefore lower pad and calliper braking efficiency. Great care should be taken if brake fluid requires replacement, both in terms of the process and fluid selection. Don't be tempted by seemingly low-cost options.

Federal-Mogul Motorparts performed technical tests on the most common types: results confirm compromised performance due to instability, especially at hot and cold temperature extremes. The fluid can become too thin at high temperatures and almost at a 'solid' state in cold temperatures. Furthermore, a very high PH was found in the composition of these brake fluids. This makes their acidity very aggressive for the braking system's components, both for metal and rubber parts. Experts on braking systems for both Aftermarket and Original Equipment, such as Ferodo, advise the careful selection of well-known and market-recognized brands to ensure a trouble-free driver experience.

The right tool

Ferodo's Brake Fluid Tester checks the health status of brake fluid at any time and in any place. The tester provides, in less than a minute, an accurate digital measure of the boiling point temperature of the brake fluid. The Ferodo tester uses a probe to directly measure the boiling temperature; it does not measure the temperature indirectly, like electric conductivity testers. Especially with new generation brake fluids, such as the Ferodo types, the latter proves to be a low-accuracy, relatively unreliable method. Testers that use electric conductivity can potentially jeopardise the correct operation of crucial safety-related components.

Comply with DOT recommended by the manufacturer

Replacement intervals are dictated by the fluid's hygroscopic quality, which is its tendency to absorb moisture, possibly caused by a brake hose cracking or by the normal degeneration of the quality of the fluid. For example, silicone-based DOT5 is more hygroscopic than DOT3 or glycol-based DOT4. Under harsh braking, the liquid in contact with the rubber surfaces and the calliper pistons may achieve elevated temperatures, up to 200°C. Due to moisture retention, water vapour is produced, which can be compressed. Therefore, the stroke of the pedal becomes dangerously long, with a consequent worsening of the braking efficiency. One year is enough for the fluid boiling temperature to decrease by up to 80°C. For this reason, the minimum boiling points of the more common fluids are as follows: DOT3, 205°C; DOT4, 230°C; DOT5, 250°C; DOT5.1, 260°C. It should be considered that when the DOT and the boiling point increase, the moisture retention tendency grows as well. Therefore, a DOT5.1 should normally be replaced every 6 months.

Useful tips

After several thousand miles, consider topping off the brake fluid level. A slight level decrease is often due to the progressive wear of the rubbing surfaces within the braking

system (pads and rotors), or some fluid may have overflowed from the reservoir during a pad replacement. This spilled fluid may corrode parts of the engine compartment that it comes into contact with. Do not mix glycol-based DOT3 and DOT4 fluids with silicon based DOT5 fluids, as they are not compatible.

More details and advice on brake fluid replacement procedures are available on the FM-Campus YouTube channel, through the video [“How to check and replace your brake fluid”](#).

About Federal-Mogul

Federal-Mogul LLC is a leading global supplier of products and services to the world's manufacturers and servicers of vehicles and equipment in the automotive, light, medium and heavy-duty commercial, marine, rail, aerospace, power generation and industrial markets. The company's products and services enable improved fuel economy, reduced emissions and enhanced vehicle safety.

Federal-Mogul operates two independent business divisions, each with a chief executive officer reporting to Federal-Mogul's Board of Directors.

Federal-Mogul Motorparts sells and distributes a broad portfolio of products through more than 20 of the world's most recognized brands in the global vehicle aftermarket, while also serving original equipment vehicle manufacturers with products including braking, wipers and a range of chassis components. The company's aftermarket brands include ANCO[®] wipers; Beck/Arnley[®] premium OE quality parts and fluids; BERU^{®*} ignition systems; Champion[®] lighting, spark plugs, wipers and filters; Interfil[®] filters; AE[®], Fel-Pro[®], FP Diesel[®], Goetze[®], Glyco[®], National[®], Nüral[®], Payen[®], Sealed Power[®] and Speed-Pro[®] engine products; MOOG[®] chassis components; and Abex[®], Ferodo[®], Jurid[®] and Wagner[®] brake products and lighting.

Federal-Mogul Powertrain designs and manufactures original equipment powertrain components and systems protection products for automotive, heavy-duty, industrial and transport applications.

Federal-Mogul was founded in Detroit in 1899 and maintains its worldwide headquarters in Southfield, Michigan. The company employs nearly 53,000 in 24 countries. For more information, please visit www.FMmotorparts.eu

*BERU is a registered trademark of BorgWarner Ludwigsburg GmbH

CONTACT:

IMAGES:

	<p>The complete new generation Ferodo® brake fluids range.</p>
	<p>The Ferodo® Brake Fluid Tester checks the health status of brake fluid at any time and in any place. The tester provides, in less than a minute, an accurate digital measure of the boiling point temperature of the brake fluid.</p>
	<p>The new generation Ferodo® DOT4 brake fluid.</p>
	<p>The new generation Ferodo® DOT5.1 brake fluids range.</p>
	<p>Video on F-M Campus YouTube channel: How to check and replace your brake fluid</p>