

TECHNICAL TIPS

N°5: LOSS OF BRAKING EFFICIENCY

VAPOUR LOCK N°2



VAPOUR LOCK

In the previous leaflet **Vapour Lock N°1** we discussed the cause of vapour lock and provided some insights into choosing the correct fluid according to needs and highlighted the wet and dry boiling points. However, it is just as important to check brake fluid regularly and, when moisture content is too high, to replace the brake fluid.

TESTING BRAKE FLUID

Although many vehicle and brake manufacturers give minimum recommendations, the right time to change the brake fluid should not be based on the vehicle's mileage or age. The only real way to know is to test the brake fluid. And the only approved way to test it is by boiling it.

TESTERS

Conductivity or "pen-type" testers do not boil the fluid. They estimate the water content electronically. In theory, conductivity (and/or capacitance) increases with moisture content, but these testers can potentially fail new fluid and pass contaminated fluid. This is because the conductivity of brake fluid varies hugely from manufacturer to manufacturer, from batch to batch, and from grade to grade. For your safety and that of your customers, make sure to use an adequate tester.



CONDUCTIVITY OR "PEN-TYPE" TESTER

FERODO BRAKE FLUID TESTER

Ferodo has developed a high-quality brake fluid tester to ensure you can accurately measure the brake fluid of your customers. It is available under part number FFT100A. In cases where customers require totally accurate water content, Ferodo can determine it by using industry standard techniques such as the well-known Karl Fisher method for water content.



FERODO BRAKE FLUID TESTER



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REPLACING BRAKE FLUID

1. CHOOSE THE RIGHT BRAKE FLUID:

Caution: Prior to bleeding the system, conduct a master cylinder leak pass test. This is done by attaching a pressure gauge to the closest caliper brake pipe. The system must then be pressurized to 50 bar for 45 seconds, during which there should be no more than a 4 bar loss of pressure. More than a 4 bar pressure drop indicates a master cylinder leak pass, requiring further attention. A second check can also be carried out but at a lower pressure of 10 bar still checking for loss of pressure and longer pedal travel to double-check for weaknesses in the system.

BLEEDING PROCESS – VEHICLES WITH FRONT AND REAR DISC BRAKES

All brake bleeding needs to be conducted in a set order, starting with the brake caliper furthest from the master cylinder (either left rear or right rear dependant on the vehicle configuration, i.e. Left-Hand Drive or Right-Hand Drive).



- With all bleed nipples closed, fit a bleed pipe to the first caliper and loosen the nipple.
- Using slow, full and firm strokes of the brake pedal continue until the brake fluid is visually (in the bleed pipe) clean, and clear of air bubbles.
- With the pedal fully depressed tighten the bleed nipple, and remove the bleed pipe.
- Continue to the opposite rear caliper and repeat the procedure.
- After completing the rear calipers make certain the front calipers are also properly functioning and free of air bubbles by bleeding the front calipers starting also furthest from the master cylinder, and finishing closest to the master cylinder.
- Finally ensure that an adequate pedal pressure is achieved.

BLEEDING PROCESS – VEHICLES WITH DRUM BRAKES

All brake bleeding needs to be conducted in a set order, starting with the wheel point furthest from the master cylinder (either left rear or right rear dependent on the vehicle configuration, i.e. Left-Hand Drive or Right-Hand Drive).

Prior to starting the bleeding process it is essential to ensure the correct manual adjustment (if present) is carried out on the brake shoes to brake drum clearance, to ensure the clearance is correct according to manufacturers specifications.

- With all bleed nipples closed, fit a bleed pipe to the bleed nipple, of the wheel cylinder furthest from the master cylinder and loosen the nipple.
- Using slow, full and firm strokes of the brake pedal, continue until the brake fluid is visually (in the bleed pipe) clean, and clear of air bubbles.
- With the pedal fully depressed tighten the bleed nipple, and remove the bleed pipe.
- Continue to the opposite rear caliper and repeat the procedure.
- After completing the rear calipers make certain the front calipers are also properly functioning and free of air bubbles by bleeding the front calipers starting also furthest from the master cylinder, and finishing closest to the master cylinder.
- Finally ensure that an adequate pedal pressure is achieved.

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