



Dangers of conductivity type brake fluid testers

Electronic devices to test automotive brake fluid when in service are becoming increasingly popular. Correctly designed and used, they can make a real contribution to road safety, while providing profit opportunities for garages.

However, customers should be aware that these testers are not all of the same design and some are very much better than others. We are aware of many incidents where electronic brake fluid testers have incorrectly failed new product straight out of a bottle, while under different circumstances passing product as acceptable which had become dangerous for use.

In our experience any brake fluid tester which does not actually heat the fluid is likely to give misleading or even dangerous results. Such testers will estimate the water content electronically by measuring the conductivity (or occasionally the capacitance) of the fluid, which in theory increases as water is absorbed. The tester then converts this measurement to supposed boiling point and indicates the result commonly as a display of green, yellow or red lights, depending on the conductivity.

Unfortunately, this measurement principle is fatally flawed as the conductivity of new brake fluids varies substantially, from not only between DOT 3, DOT 4 or DOT 5.1 types but also from formulation to formulations within a DOT grade depending on the additives used. This means that unless a conductivity tester is calibrated on one manufacturer's product and then used for that product only, it is likely to give very inaccurate results.



Example of a conductivity type Brake Fluid Tester

In contrast to this type of equipment testers are available which actually heat a sample of the fluid to establish the boiling point, thereby getting away from the problem of varying conductivities. In our experience these provide the best balance of performance and economy currently available. Even so caution is needed, careful handling and regular calibration being required if results are to be reliable.

In cases where customers require totally accurate water contents or boiling points, it is recommended that they return samples to Brake Engineering so that laboratory tests can be conducted to ensure that the fluid meets the required standards using industry standard techniques such as the well known Karl Fischer method for water content.

For further information please contact our Technical Department on (01978) 667811