

**Please note:**

The technical tips describe general procedures which may not apply to all vehicles or individual components. Therefore, we cannot guarantee that the information provided as part of the technical tips is universally correct. If you are in any doubt, TRW strongly recommends that maintenance and repair work is carried out by trained specialists as per the specific vehicle manufacturer's guidelines. Thank you for your understanding.

## Installing steel-braided brake hoses

TRW-Lucas steel-braided brake hoses comprise a stainless steel mesh in a plastic coating, fitted with an internal PTFE hose. As a result, you will always be on the safe side. Unlike the majority of OE standard rubber parts, TRW-Lucas hoses do not expand under high temperatures or brake pressure and therefore offer an improved brake response and a more precise perceptible pressure point.

Due to material make-up, TRW-Lucas steel-braided brake hoses have a long life and don't need replacing as often as rubber

hoses which must be exchanged every five years. For this reason, TRW grants a long-term material and material processing guarantee.

TRW provides in excess of 1000 complete steel-braided brake line kits, over 850 of which boast a General Vehicle Certification (TÜV certified). They are suitable for all Anti-Lock Braking (ABS) and dual combined brake systems (Dual-CBS).



1.

**Extract brake fluid**

2.

**Drain brake system**

3.

**Compare old and new brake lines**

## Proceed as follows:

Please do not forget the following before starting work: Brakes are safety critical components. Only work on the brake system yourself if you are experienced in Technical maintenance and repair work. Do not risk your safety! If you are in any doubt as to your ability, please have the work completed by a reputable workshop.

Position the motorcycle so the brake fluid tank is in a horizontal position to prevent the contents from spilling out when you open the container. Cover the tank and any painted components in the vicinity of the brake fluid tank.

**CAUTION:** Most brake fluids are poisonous and corrosive. They may damage the paintwork if they overflow. In case of emergencies, rinse off immediately with plenty of water (do not just wipe it off). Brake fluid must not come into contact with your skin, the brake discs or the pads.

**1.** Carefully undo the screws on the Brake fluid reservoir lid using a suitable screwdriver. Remove the lid from the tank using a lint-free cloth. Now extract the brake fluid. If you do not have a vacuum pump available, use the hydraulics system to pump out the old fluid by actuating the brake lever or foot pedal.

**2.** Now remove the old brake hoses. Have a non-corrosive container at hand. Undo the first brake line at its lowest point (brake caliper) and allow the brake fluid to escape into the container to fully drain the system. Pump with the brake lever to accelerate the process. If two brake calipers have been fitted (two-rotor disc brakes), remove the first line at its lowest point before removing the second line.

**3.** Only undo the first line at the top end once the system has been fully drained.

**CAUTION:** The hose may still contain residue of corrosive brake fluid which may escape.

**4.** Compare the length of the old and the new brake line. If it matches, clean the connecting surfaces and subsequently fit the new brake line with new seals. Take great care not to kink or distort steel-braided brake hoses during installation, and route them in exactly the same way as the old one to prevent them from chafing or kinking when the fork moves downwards.

Please observe the torque specifications provided by the motorcycle manufacturer or specified in the installation instructions. It is imperative you use a torque wrench as brake calipers and main brake cylinder housings are very sensitive components which may crack as a result of excessive tightening torques.

If your motorcycle is equipped with two-rotor disc brakes, repeat the previous work step with the additional line(s).



**For maximum performance and safety TRW recommends to exchange brake fluids at least every two years.**



4.

Fit new brake line



5.

Bleed brake system

5. Subsequently refill the brake system and bleed it.

**IMPORTANT:** Always use brake fluids as per the specifications approved for your specific vehicle. Your vehicle's operating instructions specify the correct type. Some brake fluid containers may also specify the correct brake fluid type. Please observe the warnings on the packaging. Old brake fluid and any cloths used are hazardous waste that must be disposed of correctly.

It is not always easy to bleed steel-braided brake hoses due to their relatively small internal diameter. We recommend using a pneumatic bleeding unit, such as the TRW-Lucas MCE200, which is compatible with all commercially available compressors. Please refer to the manual provided with the corresponding device for information on how to proceed.

If you do not have a bleeding unit available, fill the supply tank with new brake fluid up to the „Max.“ mark as specified by the vehicle manufacturer (see operating instructions or labelling on brake fluid tank). Now place a spanner on the bleed screw, slide a non-corrosive, transparent hose over the valve and position a non-corrosive container underneath the hose. Turn the bleed screw by half a turn. Pump three times using the brake lever or pedal and retighten the bleed screw while pulling the lever. Only release the lever once this step has been completed. Repeat this

process until you can no longer identify air bubbles inside the hose, taking into account the „Max./Min.“ levels of the supply tank. Carefully hitting the hose, junction and reservoir using a screwdriver handle may help to drive out any remaining air from the system. Make sure the level does not fall below the „Min.“ level at any time – top up in due time. If applicable, repeat the procedure on the second brake caliper.

If a brake caliper is fitted with two bleed screws, you must also bleed the other screw. If after many unsuccessful bleeding attempts and with the bleed screw tightened, no solid brake pressure point is perceptible on the brake lever, it's possible that either: there is a leak; the bleed screw has been undone to an excessive extent or the use of a bleed unit is unavoidable as residual air has become trapped within the system.

If everything has gone according to plan, top up the brake fluid container up to the „Max.“ level, position the rubber cup and install the lid.

**IMPORTANT:** It is vital you check the correct function of the brakes in a final step. A decent pressure point must be perceptible after a short pressure-free movement, before the lever comes into contact with the handlebars.

## The work steps in brief:



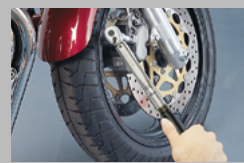
1. Extract brake fluid from the expansion tank.



2. Drain the remaining brake fluid.



3. Compare the brake line lengths.



4. Tighten using a torque wrench.



5. Bleed the brake hoses.