Explanation of symbols

WARNING  Potential hazard situation which can cause serious personal injury or death if the safety instruction is not observed.

CAUTION  Potential hazard situations that can cause minor or moderate personal injury if the safety instruction is not observed.

CAUTION Potential hazard situations that can cause material loss if the safety instruction is not observed.

! Important instructions, information or tips that you should always observe.

- List

– Step

! Carefully read through all the safety information before starting the test.

General safety instructions

Only specialised personnel with specific system knowledge are authorised to carry out tests on the device.

Always comply with the company and national accident prevention/health & safety regulations.

Always wear the required protective clothing such as protective footwear, protective goggles, etc.

Do not install a repaired device in the vehicle unless it has passed the following tests.

Never install a leaking or damaged device on the vehicle. This could cause an accident.

Equipment/tools required

- Test bench 435 197 000 0 or adequate testing equipment
- Test hoses
- Matching test ports
- Holding appliance for securing the device (for devices with female and male threads)
- Soapsuds and brush
- Test lamp with a battery rating of 1.5 V to a max of 24 V (for device with switch)
- Screw-type blank cap (if required)
- Rubber plug (for expanding wedge devices)

Additional documents required

- Test Bench 435 197 000 0 - Operating Instructions
- General Repair and Test Information 815 020 109 3
- Outline Drawings

! The documents are available on the WABCO website **http://www.wabco-auto.com** - simply enter the product or document number in INFORM.

Hints for testing

! While testing the device always observe the test instruction.

Only start testing after you have read and understood all information required for testing.

Test the device on a calibrated test bench.

In case of doubt, use test values specified by the vehicle manufacturer.

Perform the following test steps in the specified order.

Testing

1	– Place device on workbench. **CAUTION**  **Danger of injury due to the device falling** Ensure that the device cannot roll or drop off the workbench. Otherwise your feet could be injured.
External evaluation	
2	– Inspect device for external damage.
3	– Check all ports of the device for contamination by carrying out a visual inspection.
Preparations	
4	– If available: Unscrew VOSS screw-type coupling.
5	– Seal additional ports - except test port - with screw-type blank caps.
6	– Secure device on suitable holding appliance. – Clamp the clamping angle of the device in the vice. **CAUTION** **Damage to the device by vice** Never directly clamp the device in the vice. This could damage the device.
7	– Connect device to test bench or an adequate test facility. **CAUTION**  **Danger of injury due to hose coming loose, possibly with a loud bang** Make sure that plug-in connections on the test bench / testing equipment and on the device are safely plugged. ! For the relevant supply pressure, refer to proposal drawing. ! **Test Bench 435 197 000 0:** Ensure that the stopcocks are in a correct normal position (see table).

Normal position of stopcocks on the test bench 435 197 000 0

Shut-off cocks	A	B	C	F	L	V	2	3	4	6	7	11	12	21	22
on	x											x			
off		x	x	x	x	x	x	x	x	x	x		x	x	x

Leak test	
8	– Vent device at test pressure (8 bar). ! Do not vent device suddenly. Recommendation: Perform venting via orifice with diameter 1 mm. The venting pressure must not be higher than specified in the proposal drawing.
9	– Soap down device on the pressurised side of the clamping ring. ! There must not be any soap bubbles.
Functional test	
10	– Pressure and vent device several times by applying the test pressure (8 bar). ! Do not vent device suddenly. Recommendation: Perform venting via orifice with diameter 1 mm. The piston rod must move rapidly back & forth (devices with a return spring).
Completion of tests	
11	– Exhaust device to 0 bar. **CAUTION**  **Danger of injury due to hose coming loose, possibly with a loud bang** Do not disconnect the hose connections until you have vented the device to 0 bar.
12	– Ensure position of device components is in accordance with proposal drawing. ! Check proper position and fitment of bellows.
13	– Clean device.
14	– If available: Screw in VOSS- screw-type coupling again. Observe proper torque.

Special tests

! Some devices must be subjected to special test in addition to the test procedures described above.

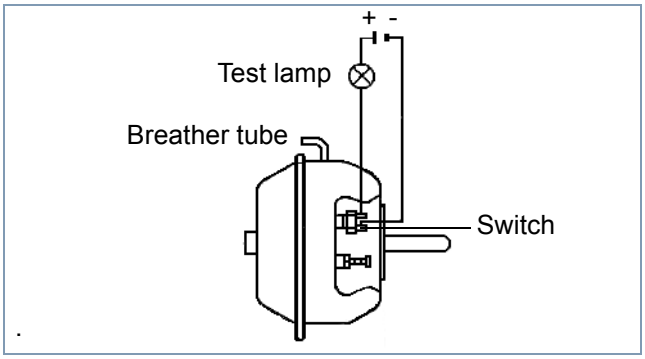

Fig. 1 Brake Chamber

Test of disc brake cylinders

CAUTION **Damage to the device due to leaks**
Make sure that the sealing washer and the white guide ring have direct contact with the cylinder.

– If the rings (where applicable) have been pushed to the front (away from the cylinder) during the test, move both rings back to their original position so that they have direct contact with the cylinder.

Switch test for devices with stroke indicator

– For devices with stroke indicator, check the switch (see fig. 1) for proper electrical and mechanical function.
– Check flashing of test lamp according to specifications in the proposal drawing.

Test of devices with fording ability

Devices with fording ability are also operational in water. The following test is designed to check for tightness:

– For expanding wedge devices: Seal pipe with rubber plug.

Perform under water test:

– Mount test port to breather tube (see fig. 1) in cylinder cover.
– Vent device via breather tube at 0.4 bar.

! Bellows must remain tight.

No bubbles may form at the vent of the rubber plug and the tubule connection.