

Test instruction

i Prior to testing read carefully the safety instructions.

Notes on Safety

! WARNING

Testing the device on the test bench is to be made only by qualified personnel with a specific system knowledge.

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

Test the device only on a calibrated test bench.

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

While testing the device implicitly observe this test instruction.

! CAUTION

Keep company's as well as national accident prevention regulations

Unlock screws, hoses and equipment parts only when the respective lines of the test bench are vented.

Test instruction for device 461 319 ... 0

008	080	086	260	271
018	081	088	261	272
028	082	089	262	273
032	083	090	263	274
050	084	092	264	280
060	085	250	270	281


Symbols and Signal Words

! WARNING

Possible hazard situation. Disregarding it may cause grave personal injuries or death.

! CAUTION

Possible danger: Any non-compliance can result in minor or medium severe personal injuries.

- Handling
- List
- i** Instructions, explanations, information, tips
-  Gauge indication

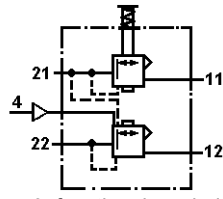
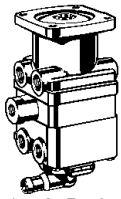


Fig. 1 + 2 Brake valve 461 319 ... 0, functional symbol

i Necessary equipment/tools

- Test bench 435 197 000 0 or an adequate testing equipment
- Adequate equipment:
 - for clamping the brake valve,
 - for impressing the plunger with mm graduation (dial indicator)
- Soap suds and brush

i Additional documents:

- (see www.wabco-auto.com => INFORM)
- Test Values 2/2: to be found by entry of the product number in INFORM
 - Test Bench - Operating Instructions: 435 197 000 0
 - General Repair and Test Hints:
 - 820 001 074 3 de
 - 820 001 075 3 en
 - 820 001 076 3 es
 - 820 001 077 3 fr
 - 820 001 078 3 it

Check sequence

- i** Perform test procedure as per specified sequence
 Find test values P1 to P17 (pressure in bar) and H1 to H9 (travel in mm) in document "Test values 2/2".
 Reservoir pressure is 10 bar max.
 Before starting any test ensure that cut-off cocks are in their correct normal position (see table 1).

Cock	A	B	C	D	F	L	V	2	3	4	6	7	11	12	21	22
on	x												x		x	
off		x	x	x	x	x	x	x	x	x	x	x		x		x

Table 1: Normal position of cut-off cocks on the test bench

1. External evaluation

! CAUTION

Make sure that the retaining rings are mounted correctly. The brake valve could otherwise explode while testing.

- Inspect device for external visible damage.
- Check all ports of the device for free passage by visual inspection.

2. Preparations

- Fix device in clamping equipment.

- Connect device to test bench ports (see fig. 3).

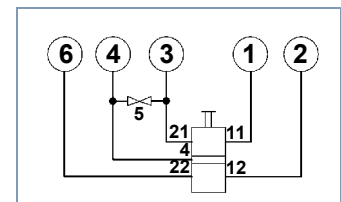


Fig. 3 Test bench ports

! CAUTION

Make sure that plug-in connections on test bench and device are safely plugged.

- Lock unused ports.
- Open cut-off cock 5.

3. Check tightness

! WARNING

Never install an untightened brake valve on the vehicle.

3.1 exhaust

- i** From a non-actuated device no air must exceed from the exhaust.
- Vent ports 11 and 12 with P1.
 - Fully operate device several times.
 - Wait until excess pressure has decreased.
 - Check exhaust of the device for tightness.
- i** No leakages admissible.

3.2 Complete device

- Operate plunger H1 (stop within the device).
- Cover complete device with soap and check tightness.
 - i** No leakages admissible.
 - With soap bubbling the device is not tight.
- Re-adjust plunger to 0 mm.

4. Obtain maximum pressure.

- Detect zero point (pressure point) by slowly impressing the plunger (see fig. 4).

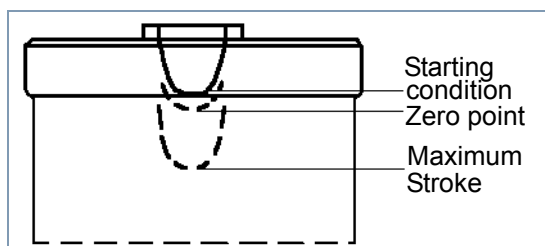


Fig. 4 Zero point

- Operate plunger H1 (stop within the device).
 - i** Pressure must increase immediately.
 - ⊗ Gauges 3, 4 and 6 must indicate P2.
- Re-adjust plunger to 0 mm.
 - ⊗ Gauges 3, 4 and 6 must indicate 0 bar.

5. Graduability

- i** In all pressure scopes incremental steps of max. 0.2 bar must be possible.

6. Check pressure increase

- Operate plunger several times.
 - ⊗ Gauges 3, 4 and 6 must indicate immediate pressure increase resp. decrease.
- i** In accordance with the type of device, one circuit must have predominance.

6.1 Check sudden pressure increase (Gauge 3)

- Operate plunger with H2.
 - i** Pressure must increase immediately.
 - ⊗ Gauges 3 and 4 must indicate P3.
 - Gauge 6 must indicate P4.

6.2 Check sudden pressure increase (Gauge 6)

- Operate plunger with H3.
 - i** Pressure must increase immediately.
 - ⊗ Gauges 3 and 4 must indicate P5.
 - Gauge 6 must indicate P6.

6.3 Distance until venting of P7/P8

- Operate plunger with H4.
 - i** Pressure must increase immediately.
 - ⊗ Gauges 3 and 4 must indicate P7.
 - Gauge 6 must indicate P8.

6.4 Distance until venting of P9/P10

- Operate plunger with H5.
 - i** Pressure must increase immediately.
 - ⊗ Gauges 3 and 4 must indicate P9.
 - Gauge 6 must indicate P10.

6.5 Distance until venting of P2

- Operate plunger with H1.
 - i** Pressure must increase immediately.
 - ⊗ Gauges 3, 4 and 6 must indicate P2.
- Re-adjust plunger to 0 mm.
 - ⊗ Gauges 3, 4 and 6 must indicate 0 bar.

7. Close cut-off cock 5.

7.1 Check sudden pressure increase (Gauge 6)

- Close cut-off cock 5.
- Operate plunger with H6.
 - i** Pressure must increase immediately.
 - ⊗ Gauge 3 must indicate P11.
 - Gauge 6 must indicate P12.
 - Gauge 4 must indicate 0 bar.

7.2 Distance until venting of P13/P14

- Operate plunger with H7.
 - i** Pressure must increase immediately.
 - ⊗ Gauge 3 must indicate P13.
 - Gauge 6 must indicate P14.
 - Gauge 4 must indicate 0 bar.

7.3 Distance until venting of P15/P16

- Operate plunger with H8.
 - ⊙ Gauge 3 must indicate P15.
 - Gauge 6 must indicate P16.
 - Gauge 4 must indicate 0 bar.
- Re-adjust plunger to 0 mm.
 - ⊙ Gauges 3, 4 and 6 must indicate 0 bar.

8. Failure of circuit 1

- Vent port 11 to 0 bar.
 - ⊙ Gauge 1 must indicate 0 bar.
- Operate plunger with H9.
 - ⊙ Gauge 6 must indicate P17.
 - Gauges 3 and 4 must indicate 0 bar.
- Re-adjust plunger to 0 mm.
 - ⊙ Gauges 3, 4 and 6 must indicate 0 bar.

9. Completion of test

- Vent port 12 to 0 bar.
 - ⊙ Gauges 1 and 2 must indicate 0 bar.

**CAUTION**

Disconnect pipe connections only after having exhausted the device to 0 bar before.

- Removing device from fixture.
- Cleaning device.