

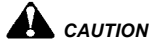
## Test instruction

### Symbols and Signal Words



#### WARNING

Possible hazardous situation. To disregard this may lead to serious or fatal personal injuries.



#### CAUTION

Possible hazardous situation. To disregard this may lead to personal injuries.

- Handling
- List

**i** Note(s), explanation(s) and information which you must take into consideration

**i** Carefully read through all the safety information before starting the testing.

### Safety information



#### WARNING

Only qualified skilled personnel with specific system knowledge are authorized to perform the device testing at the test bench.

Never start testing until you have read and understood all the information required for the test.

Test the device on a calibrated test bench only.

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

While testing the device, always adhere to the contents of this test instruction.



#### CAUTION

Comply with the company and national accident prevention/health & safety regulations

Undo the screw plugs, hoses and equipment parts only when the respective lines have been vented.

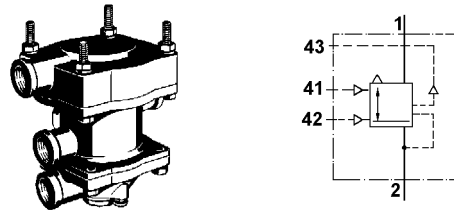


Fig. 1 Trailer Control Valve 973 002 ... 0 / functional symbol

### Test instruction for device 973 002 ... 0

005	418	428
006	425	431
125	427	

### Equipment/tools required

- Test bench 435 197 000 0 or adequate testing equipment (see fig. 3)
- Clamping angle 899 709 035 2 (see adjacent fig.)
- Soapsuds and brush
- Philips screwdriver (min. PH2x120)



### Additional documents required

- i** The documents are available on the WABCO homepage <http://www.wabco-auto.com> - simply enter the product or document number in INFORM.
- Test Bench 435 197 000 0 - Operating Instructions
- General Repair and Test Information
  - 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

## Testing

### **WARNING**

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

#### 1 External inspection

- Inspect the device for external visible damage.
- Visually inspect all the device's ports for blockages.

#### 2 Preparations


##### **Test bench**

Before starting each test, ensure that the stopcocks are in their correct normal position (see table 1).

The output side of pressure regulator D must be unpressurised.

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

Table 1: Normal position of stopcocks on the test bench

 If you do not have test bench 435 197 000 0 you must test the device according to the following diagram (see fig. 3).

Never directly clamp the device in the vice. This could damage the device.

- Fix clamping angle to device.
- Clamp the clamping angle and the device in the vice.
- Connect the device to the test bench ports (see fig. 2) or according to the test diagram.

##### **Test bench**

Set pressure regulator D to 7 bar.

### **CAUTION**

Ensure that the plug-in connections on the test bench and the device are securely inserted.

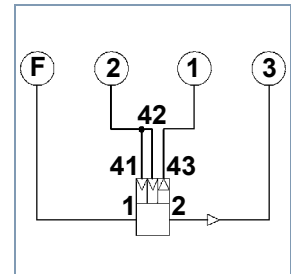


Fig. 2 Test bench connection diagram

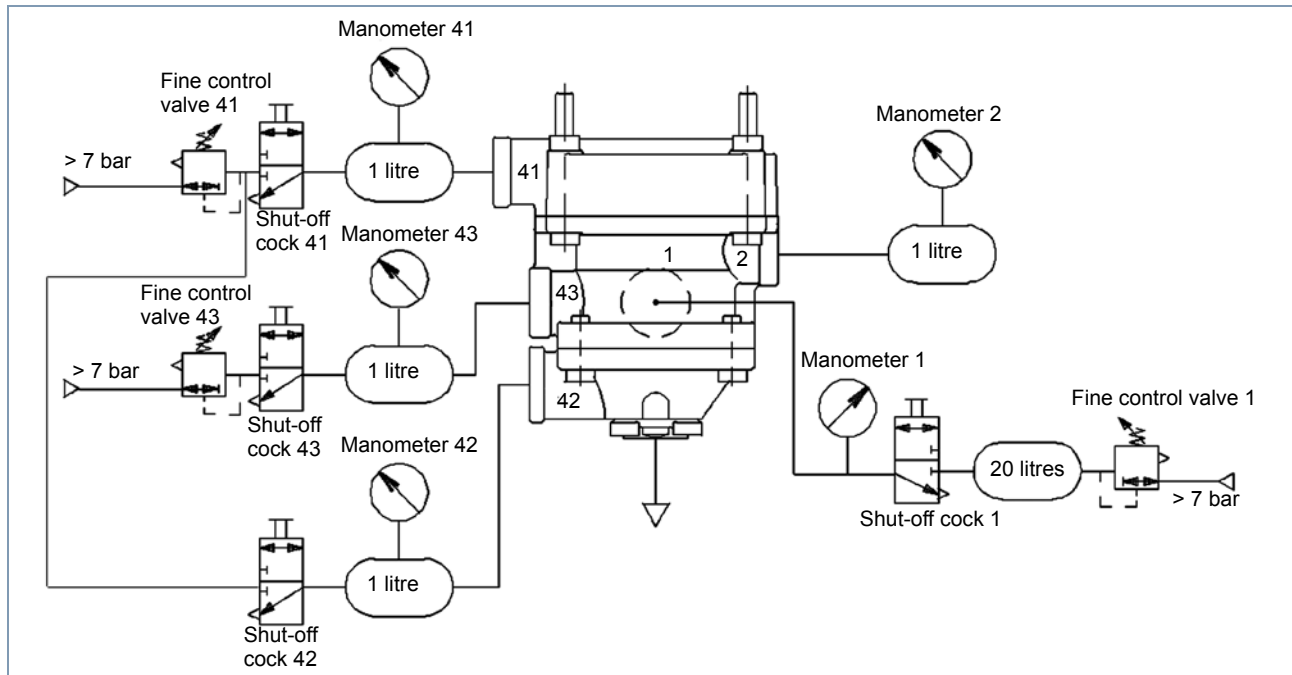


Fig. 3 Test diagram



# Trailer Control Valve

with predominance / without predominance

## 973 002 (C)

**i** Perform the following test sequence in the specified order.  
Default value V and test value P see tables 3 and 4.

**i** If test values do not fit, adjust the device.  
The braking pressure is 8 bar max / 7 bar min.

Test step	Device ports					Note
	A1 bar	A41 bar	A42 bar	A43 bar	A2 bar	
<b>3 Leak test</b>						
Vent A1 and A43. Undo and twist off the hose connection at A42. Wet A42 and the device vent with soap suds. Reconnect the hose connection.	8	0	0	8	0	Permissible leakage: 8 cm <sup>3</sup> /min  <b>WARNING</b> Never install a leaking trailer control valve on the vehicle.
<b>4 Functional test</b>						
Depressurise and pressurise A43 several times.	8	0	0	8...0 0...8	- -	Manometer 43 (test bench: Manometer 1) must display an immediate rise or drop in pressure.
Vent A43.	8	0	0	<b>V1</b>	<b>P1</b>	
<b>Check for leaks</b> Vent A43 slowly. Wet A41 and A42 with soap suds.	8	0	0	0	<b>P2</b>	Permissible leakage: 8 cm <sup>3</sup> /min  <b>WARNING</b> Never install a leaking trailer control valve on the vehicle.
Vent A43.	8	0	0	<b>V2</b>	-	Start of the pressure drop at manometer 2 (test bench: manometer 3). Device must audibly vent.
Vent A43.	8	0	0	<b>V3</b>	0	Pressure at manometer 2 (test bench: manometer 3) must audibly drop to 0 bar.
Continue to vent A43.	8	0	0	8	0	

Test step	Device ports					Note
	A1 bar	A41 bar	A42 bar	A43 bar	A2 bar	
Pressurise and depressurise A41 several times.	8	0...8 8...0	0	8	0...8 8...0	Manometer 2 (test bench: Manometer 3) must display an immediate rise or drop in pressure. Device must audibly vent.
Vent A41.	8	<b>V4</b>	0	8	<b>P3</b>	
Increase pressure slowly.	8	<b>V5</b>	0	8	<b>P4</b>	Only on variants: 006, 418, 425, 428, 431 Adjust value P4 via adjusting screw, therefore remove exhaust. Only on variants: 006, 425, 428, 431 Measuring of the possible predominance
Only on variants: 006, 425, 428, 431 Slowly vent A41.	8	<b>V6</b>	0	8	<b>P5</b>	Adjust value P5 via adjusting screw, therefore remove exhaust (final adjustment).
<b>5 Pressure stage checking</b>						
Vent A41 slowly until manometer 2 (test bench: manometer 3) shows a change. At this moment stop pressure increase and check manometer 2 (test bench: manometer 3).	8	-	0	8	Pressure stages: max. 0.3 bar	
Increase pressure slowly.	8	<b>V7</b>	0	8	<b>P6</b>	
Vent A41.	8	<b>V8</b>	0	8	-	Start of the pressure drop at manometer 2 (test bench: manometer 3). Device must audibly vent.
	8	<b>V9</b>	0	8	<b>P7</b>	



Test step	Device ports					Note
	A1 bar	A41 bar	A42 bar	A43 bar	A2 bar	
Vent A41 slowly until manometer 2 (test bench: manometer 3) shows a change. At this moment stop pressure decrease and check manometer 2 (test bench: manometer 3).	8	-	0	8	Pressure stages: max. 0.3 bar	
Vent A42 slowly.	8	0	<b>V10</b>	8	<b>P8</b>	
Continue to vent A42.	8	0	8	8	<b>P9</b>	
<b>6 Leak test</b>						
Vent A41. Wet flanges and device vent with soap suds.	8	8	8	8	-	Permissible leakage: 8 cm <sup>3</sup> /min   <b>WARNING</b> Never install a leaking trailer control valve on the vehicle.
<b>7 Vent device.</b>						
Vent A1, A41, A42 and A43.   <b>CAUTION</b> <i>Do not disconnect the hose connections until you have vented the device to 0 bar.</i>  Clean device and unclamp.	0	0	0	0	0	

Table 2: Test steps

**Default and test values**

973 002 ... 0 Variant	V1	P1	P2	V2	V3	V4	P3	V5	P4	V6
005	=> 418									
006	≥ 6.6	>0	7.2...7.8	0...0.5	7.1...7.7	>0...≤0.3	>0	2...3	A41+1	2...3
125	=> 418									
418	≥6.6	>0	7.2...8	0...0.5	7.1...7.7	>0...≤0.3	>0	2...3	A41+1	$\begin{matrix} +0.2 \\ 0 \end{matrix}$
425	≥6.6	>0	7...7.6	0...0.5	7.1...7.7	>0...≤0.3	>0	2...3	A41+1.4+0.9	2...3
427	≥6.6	>0	7.2...7.8	0...0.5	7.1...7.7	>0...≤0.3	>0	2...3	A41	$\begin{matrix} +0.2 \\ 0 \end{matrix}$
428	≥6.6	>0	7.2...7.8	0...0.5	7.1...7.7	>0...≤0.3	>0	2...3	A41+1	2...3
431	≥6.6	>0	7.2...7.8	0...0.5	7.1...7.7	>0...≤0.3	>0	2...3	A41+1	2...3

973 002 ... 0 Variant	P5	V7	P6	V8	V9	P7	V10	P8	P9	
005	=> 418									
006	A41+0.6±0.1	7.2...7.6	8	≥6.8	3...2	A41+1±0.2	0...1.4	>0	≥7.4	
125	=> 418									
418		≥ 6.8...7	8	≥6.3	3...2	A41+1.5±0.2	0...1.4	>0	7.4...8	
425	A41+0.3±0.1	7.1...7.7	8	A41-0.8-1.2	3...2	A41	$\begin{matrix} +0.2 \\ 0 \end{matrix}$	0...1.4	>0	≥7.4
427		8	≥7.7	≥7.2	3...2	A41	$\begin{matrix} +0.2 \\ 0 \end{matrix}$	0...1.4	>0	≥7.4
428	A41+0.2±0.1	7.5...7.8	8	≥7.2	3...2	A41+0.7	$\begin{matrix} 0 \\ -0.4 \end{matrix}$	0...1.4	>0	≥7.4
431	A41+0.3±0.1	7.4...7.8	8	≥7.2	3...2	A41	$\begin{matrix} +0.2 \\ 0 \end{matrix}$	0...1.4	>0	≥7.4

Table 3 + 4: Default and test values