

Job No.

Single door controlled system

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Multi-point controlled central locking system

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80-010 Functional description

A. General

The central locking system is a single-pipe system, actuating the elements by means of pressure or vacuum (bi-pressure central locking system).

Central locking or unlocking is only possible from the driver's door by actuating the key or the safety button, with the door closed. The front passenger door, both rear doors, the trunk lid and the fuel tank flap are locked with vacuum and unlocked with pressure supplied from an electrically driven pump.

Advantages of the bi-pressure central locking system

- Reduced load on the vacuum system by means of a separate supply pump.
- Simplification of the pipe system.
- Leak-proof requirements of the system are low.
- Testing for repairs is simplified.
- The load on the elements is reduced as the system is pressureless when at rest.

B. Components

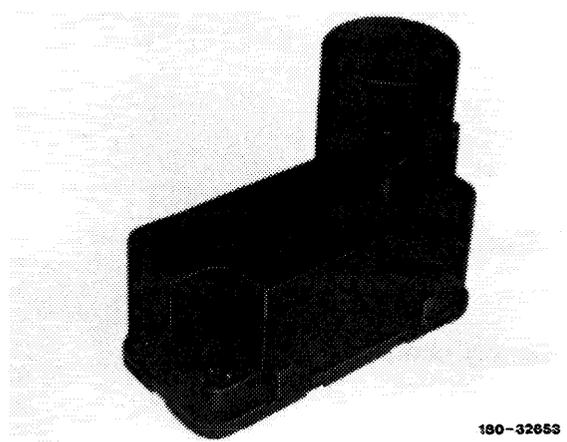
1. Supply pump

The supply pump generates a pressure or vacuum of approx. 0.5 bar within a time of approx. 2-3 seconds at 12 V battery voltage.

An electronic control ensures that the supply pump switches off after **25-60** seconds if heavy leaks exist in the system (safety switching time).

After the supply pump has come to a stop, the pressure in the pipe system is discharged after 15-20 seconds.

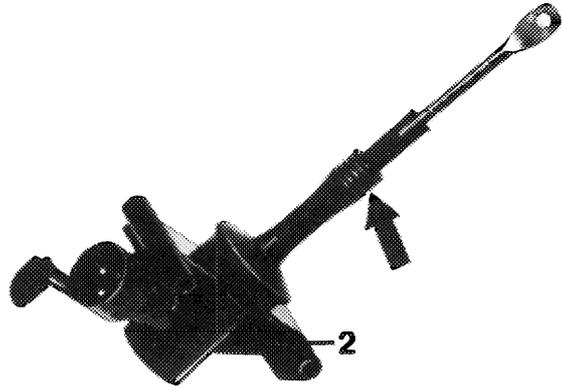
The change of the pressure direction is controlled by the clockwise or anti-clockwise rotation of the motor and the pump. In this way it is ensured that always the last command will be carried out.



180-32853

2. Switch in the driver's door

Continuous plus (circuit 30) is present at the alternating switch input side. When actuating the switch via the door lock, plus is connected to the output for the yellow control line during unlocking and to the output for the blue control line during locking.



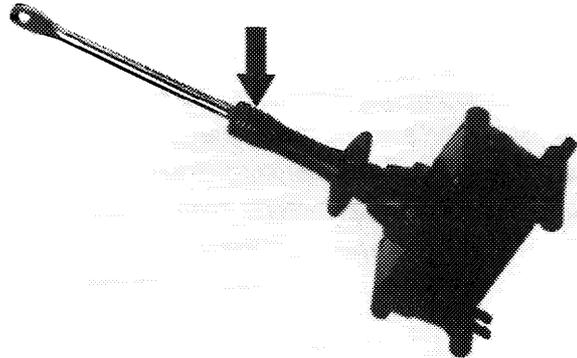
180 - 25745

3. Operating elements

A pneumatic connector is provided on the operating elements.

Operation and design of the operating elements in the doors, on the trunk lid and the fuel tank flap are identical. For locking they are supplied with vacuum and for unlocking with pressure.

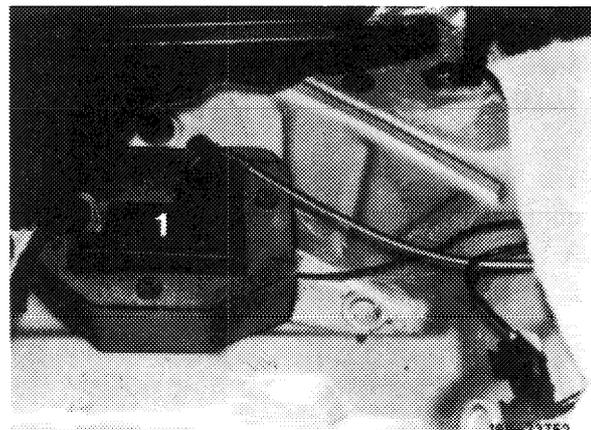
The elements for the trunk lid and the fuel tank flap differ from those of the doors only with regard to their final detent position. For external identification, an upper part of these elements is in color. The door elements however are black. The final detent position is carried out by means of a spring in the door lock.



180 - 23929

C. Component arrangement

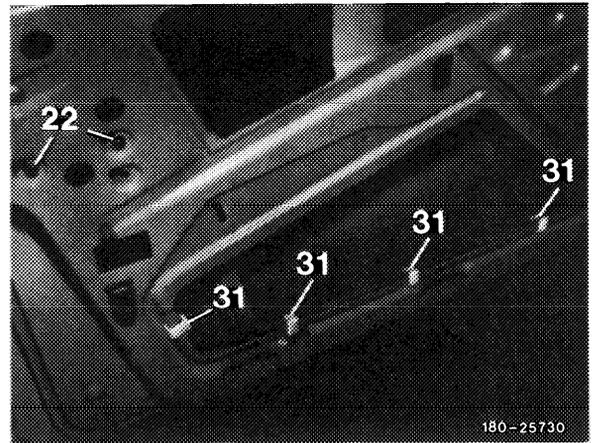
1. Supply pump



below the right rear seal

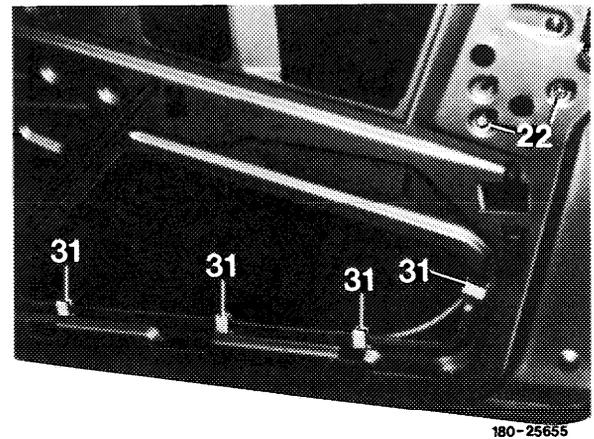
180 - 23782

2. Switch in the driver's door

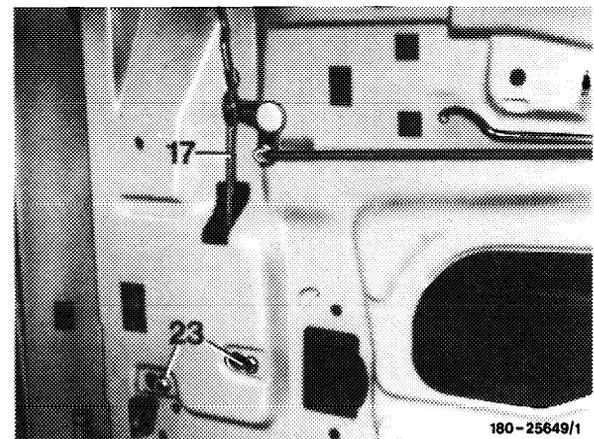


22 Mounting screws

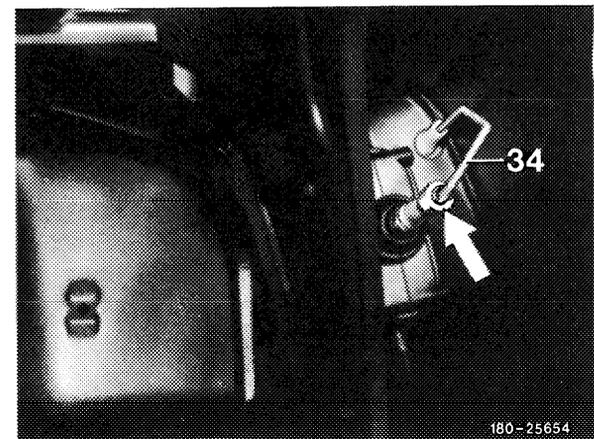
3. Operating elements



Front passenger door
22 Mounting screws

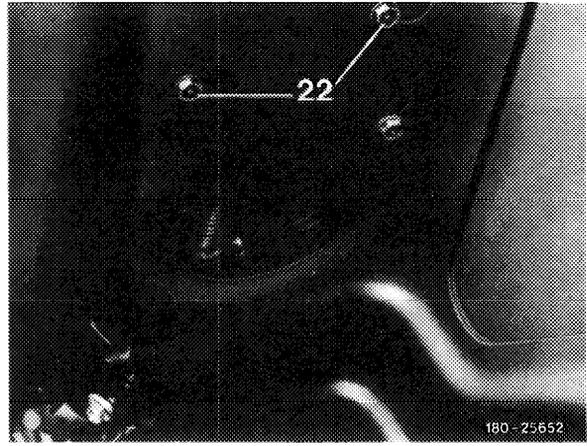


Right rear door
(left side mirror image)
23 Mounting screws

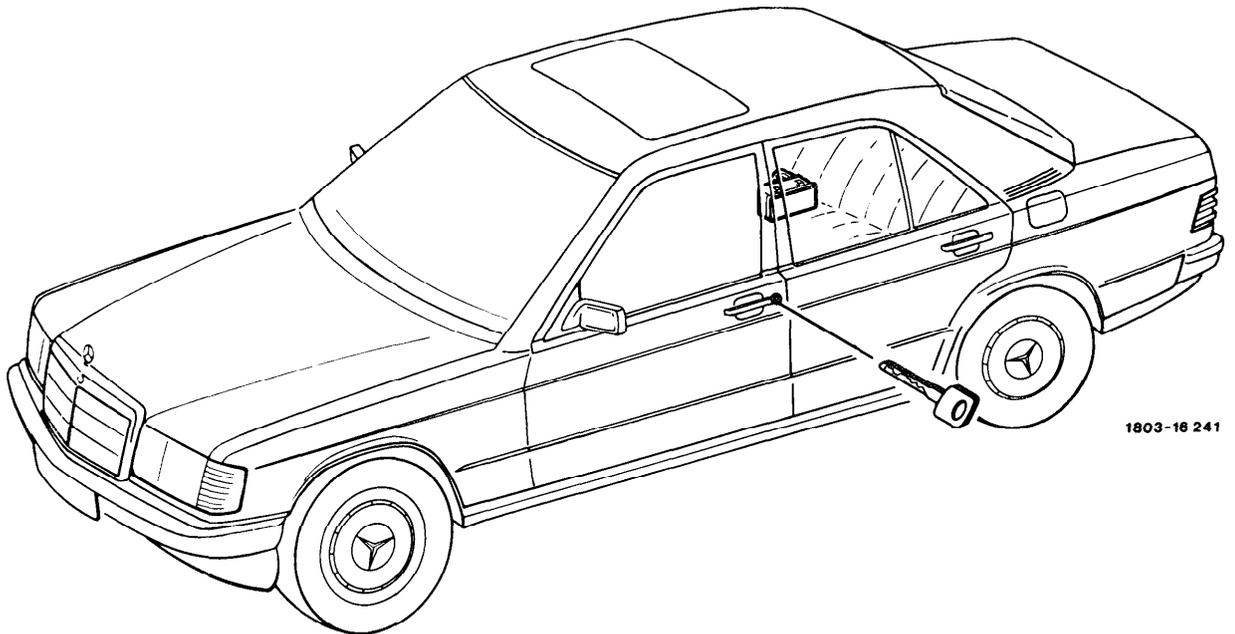


Fuel tank flap behind the right
trunk lining

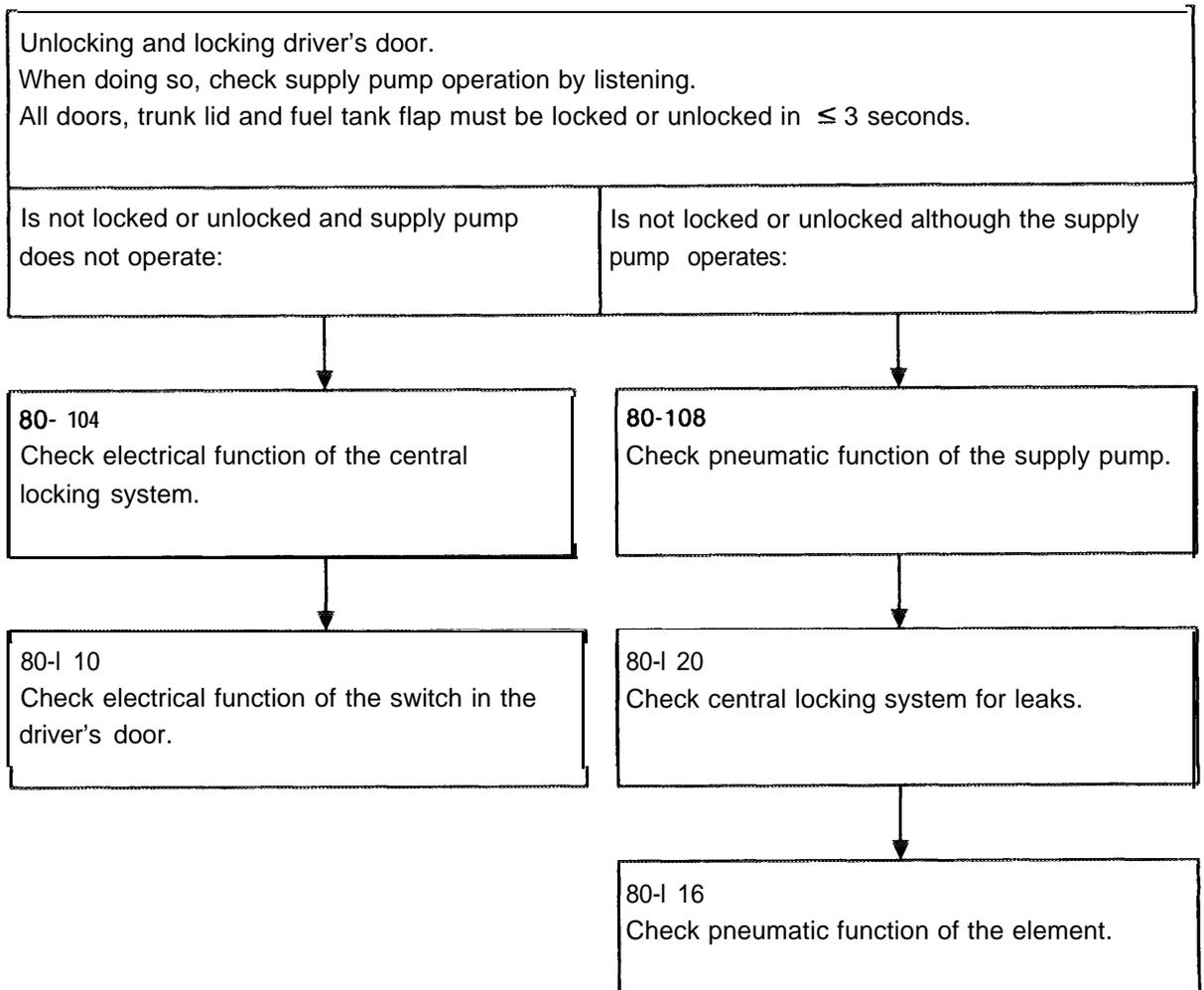
Trunk lid
22 Mounting screws



80-090 Checking function of central locking system



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80-104 Checking electrical function of the central locking system

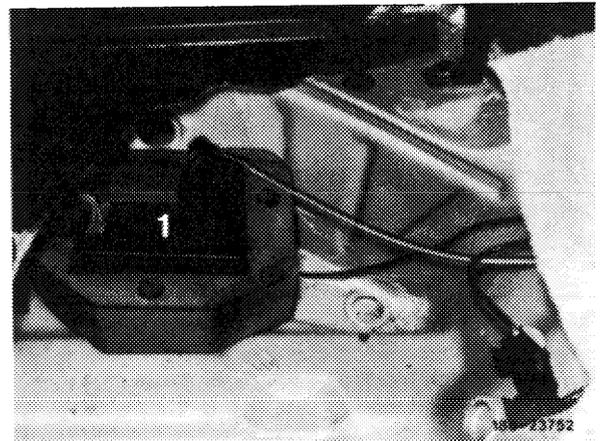
Commercially available tool

Digital multimeter

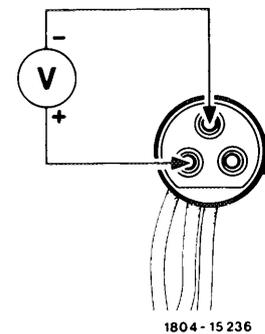
e.g. SUN DMM-5

Test preparation

- 1 Expose supply pump and remove from the protective foam material cap (80-270).
- 2 Check fuse for central locking system, see enclosure in fuse box lid.
- 3 Remove key from steering lock.
- 4 Close driver's and front passenger doors.
- 5 Pull electrical cable harness coupling off supply pump.



Check voltage supply	
Connect voltmeter to the 3-pole coupling of the cable harness as shown in the drawing (flat portion facing down).	
Unlock driver's door.	
Nominal value: battery voltage $> 10\text{ V}$	
Yes	No
↓	↓

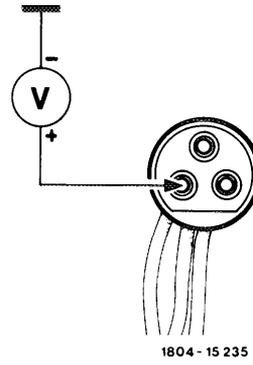


Ground check

Connect voltmeter to 3-pole coupling of the cable harness as shown on the drawing (flat portion facing down).

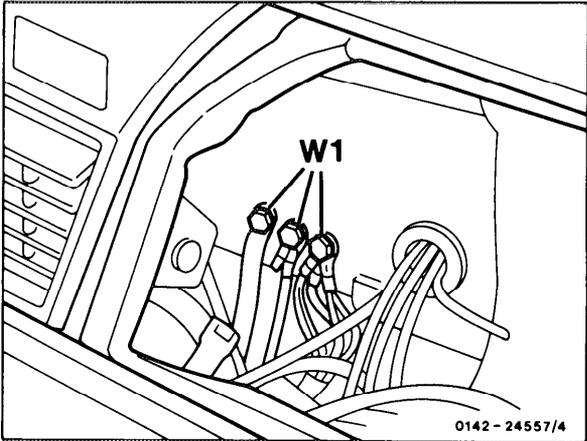
Nominal value: battery voltage > 10 V

Yes	No
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Check switch in driver's door (80-110).

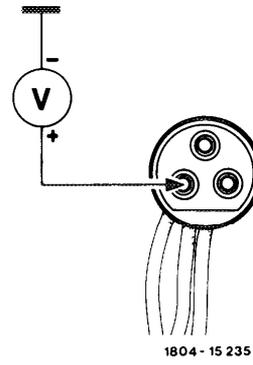
Check ground connection at main ground (W1) behind instrument cluster.



Unlock driver's door.

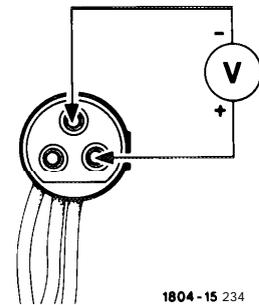
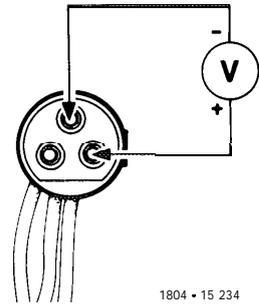
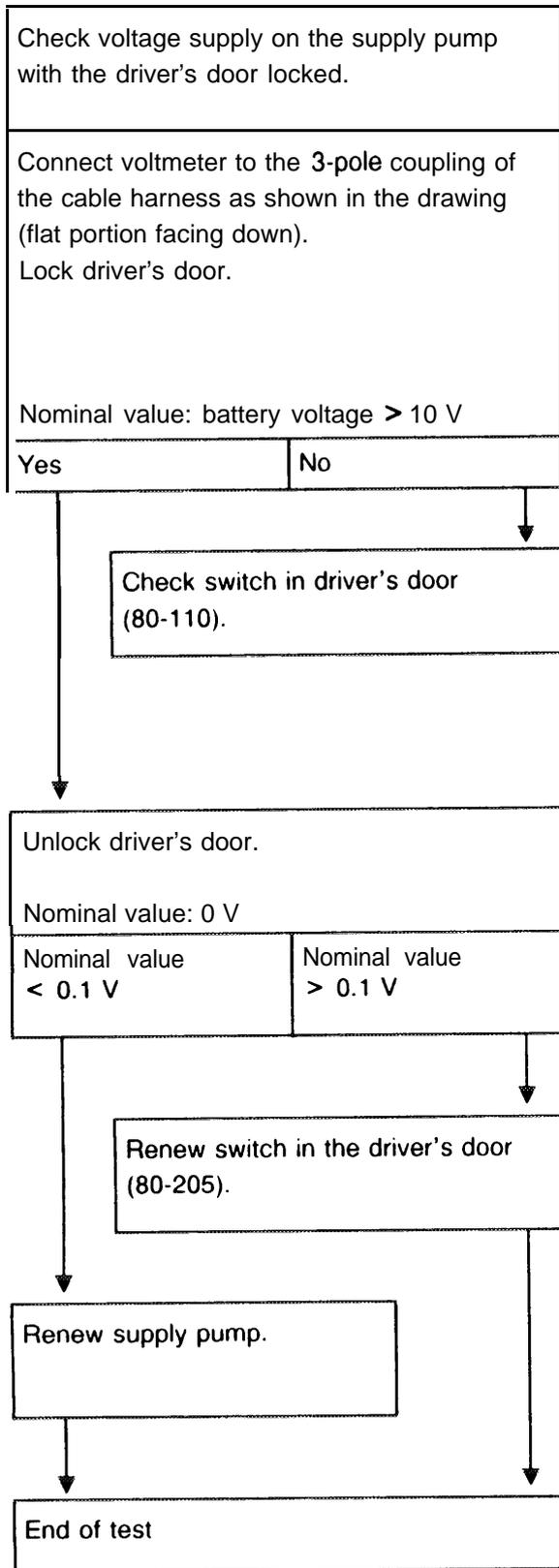
Nominal value: 0 V

Nominal value < 0.1 v	Nominal value > 0.1 v
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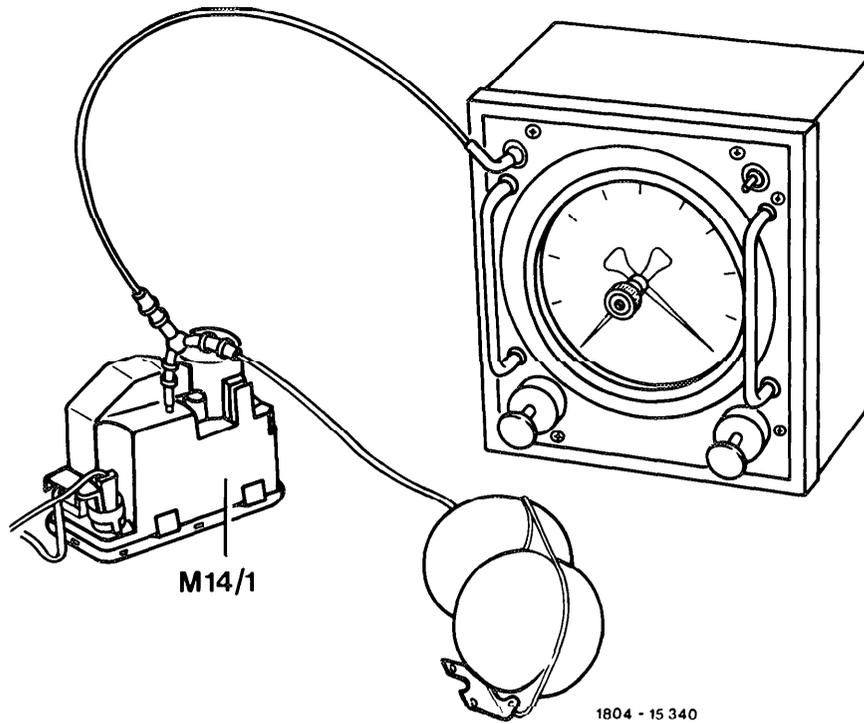


Renew switch in the driver's door (80-205).

End of test

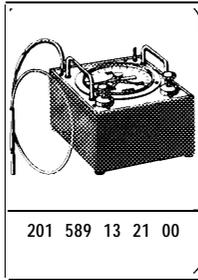


80408 Checking pneumatic function of the supply pump



Test preparation	Items 1-3.
Checking vacuum of the supply pump during locking	> 420 mbar in ≤ 3 s.
Checking pressure of the supply pump during unlocking	> 420 mbar in ≤ 3 s.
Checking safety switching time when the supply pump is separated from the pipe system	approx. 25-60 s.

Special tool



Parts for the test

Part No.

Tank	107 800 08 19
Distribution fitting	117 078 01 45
Plug	000 987 11 45

Test preparation

1 Connect tank with distribution fitting to the tester for vacuum and pressure systems to the vacuum side (black connectron).

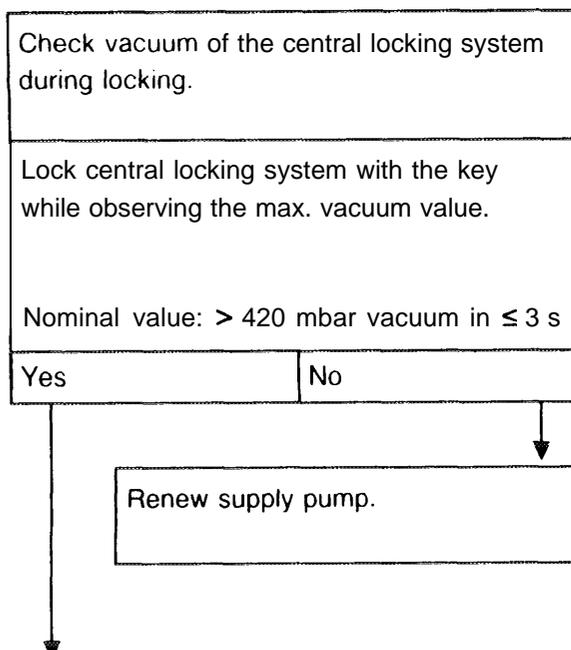
2 Remove supply pump and disconnect pneumatic pipe (80-270).

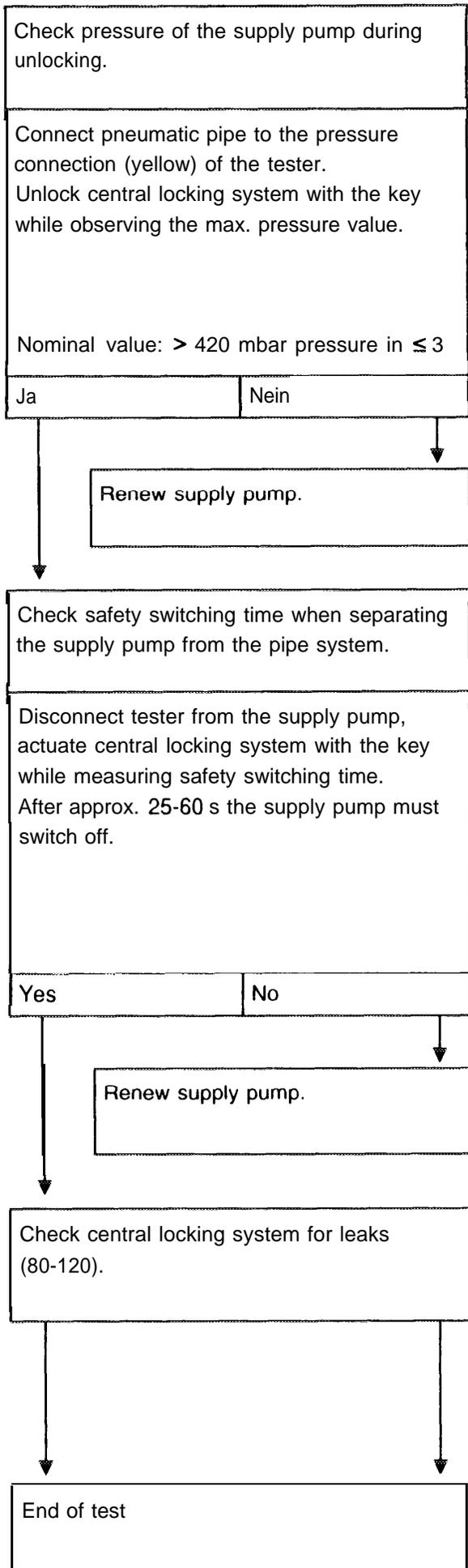
3 Connect tester for vacuum and pressure systems with tank to the supply pump.

Note

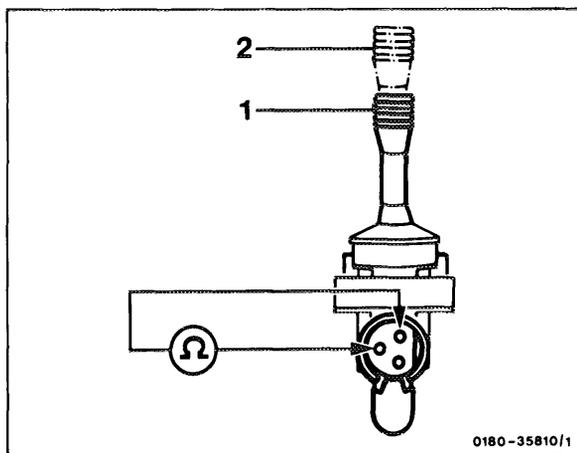
On the supply pump with pneumatic connection for orthopedic backrest, close the connection with plug part No. 000 987 11 45.

Test





80-I 10 Checking electrical function of the switch in the driver's door



Test preparation	Items 1-3
Closing function of the switch	Check
Opening function of the switch	Check
Voltage supply of the switch	Check

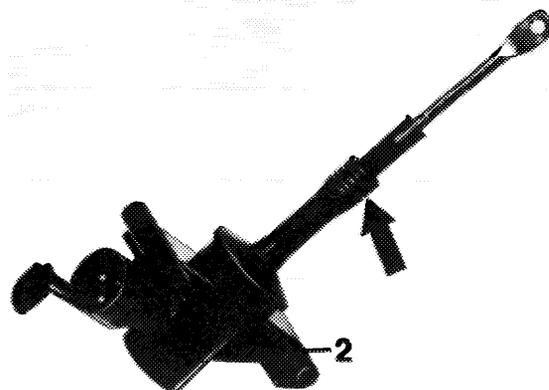
Commercially available tool

Digital multimeter

e.g. SUN, DMM-5

Test preparation

- 1 Remove switch (80-205).
- 2 Pull off electrical cable harness.
- 3 Slide sliding sleeve (arrow) over the control rod attachment (a).



Test

Check closing function of the switch.

Connect digital multimeter for resistance measurement to the switch as shown in the figure.

Nominal value in position 1 $\leq 0.5 \Omega$

Nominal value in position 2 = $\infty \Omega$

Both nominal values in order	One nominal value not in order
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Renew switch.

Check opening function of the switch.

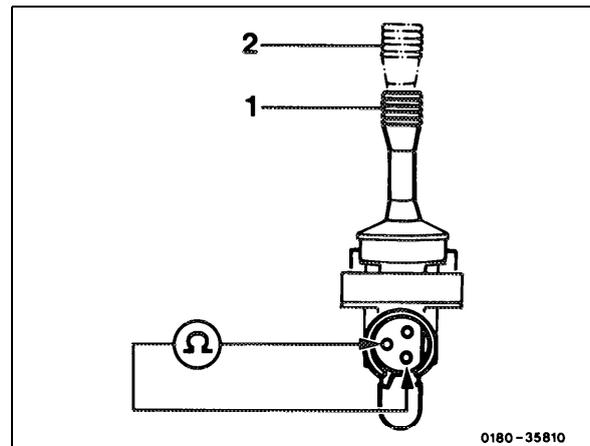
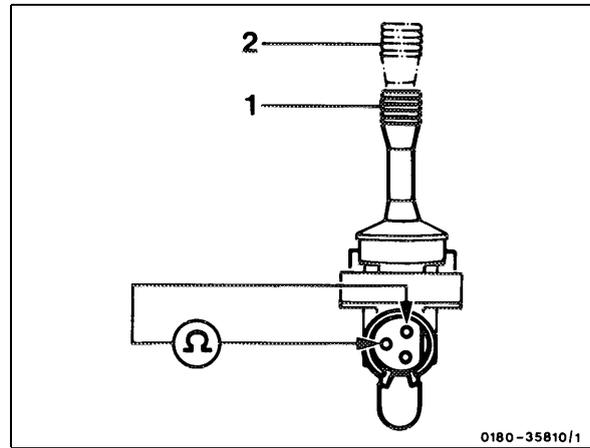
Connect digital multimeter for resistance measurement to the switch as shown in the figure.

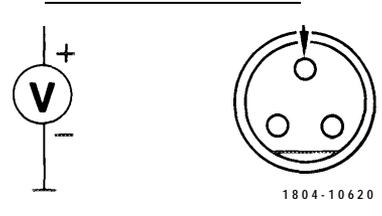
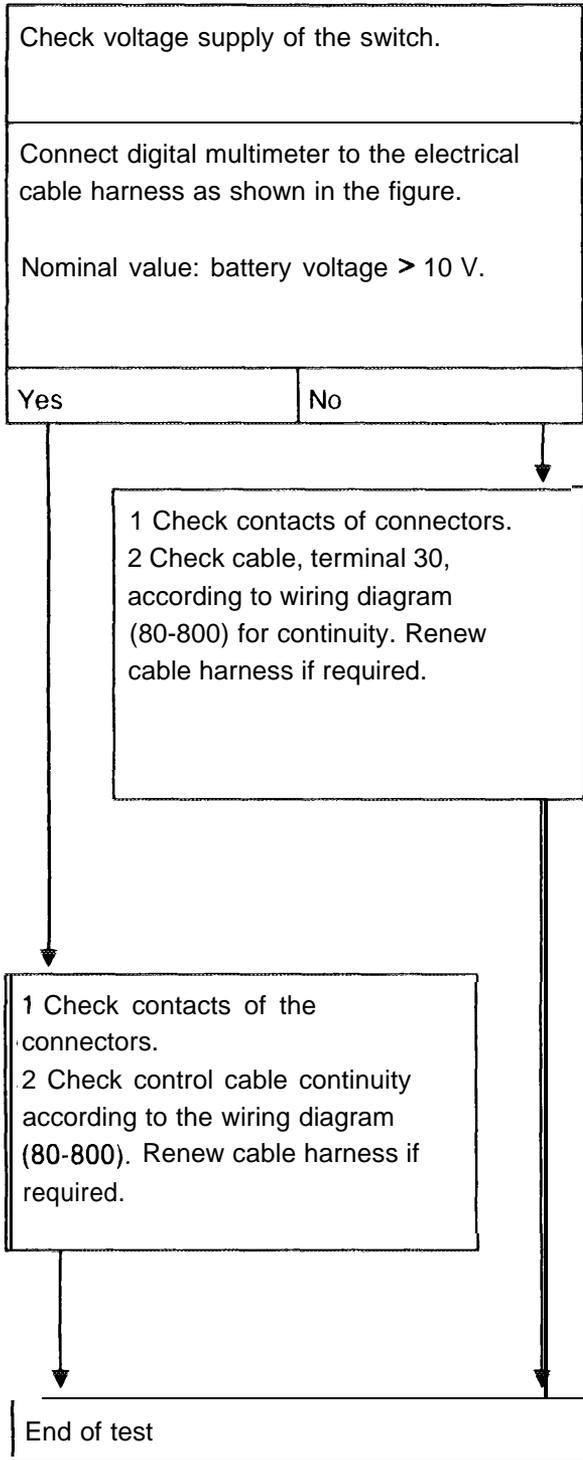
Nominal value in position 1 = $\infty \Omega$

Nominal value in position 2 $\leq 0.5 \Omega$

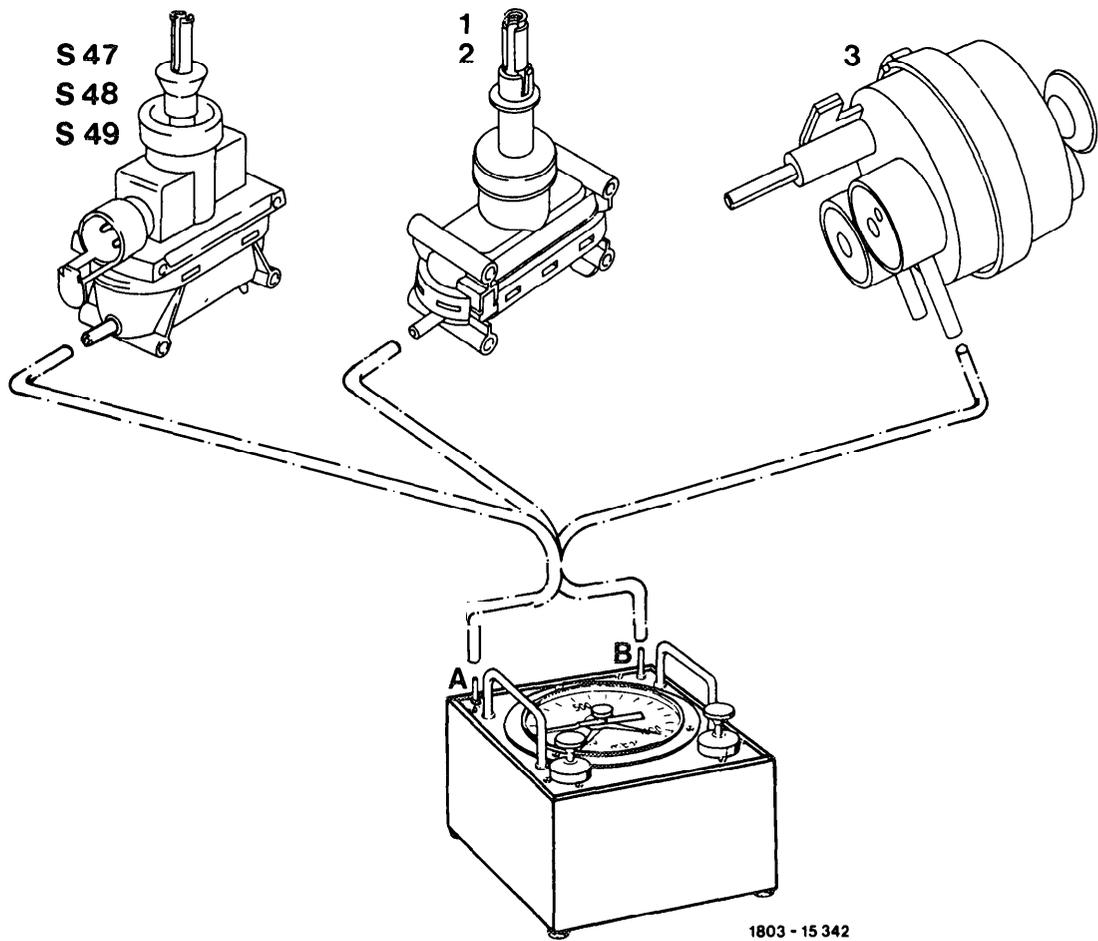
Both nominal values in order	One nominal value not in order
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Renew switch.



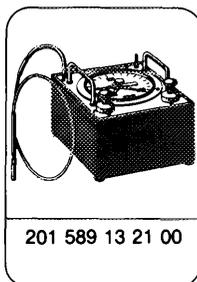


80-116 Checking pneumatic function of the element



Test preparation	Items 1-4
Checking the element for leaks in the pressure mode	Permissible leakage rate per minute at 600 mbar pressure = 30 mbar.
Checking leakage rate of the element in the vacuum mode	Permissible leakage rate per minute at 300 mbar vacuum = 30 mbar.

Special tool



Part required for the test

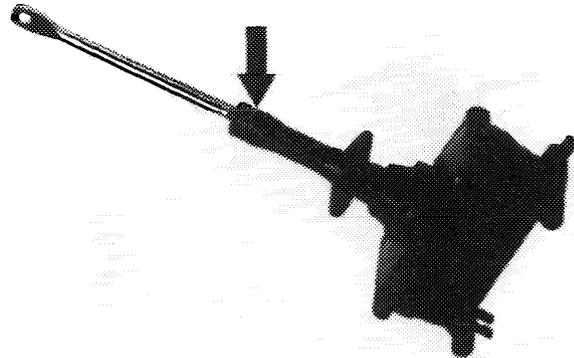
Part No.

Cap

000 987 11 45

Test preparation

- 1 Remove element (80-210, 80-220, 80-230, 80-240).
- 2 Pull off pneumatic pipe.
- 3 Slide sliding sleeve (arrow) over the control rod attachment.
- 4 Connect tester for vacuum and pressure systems to the pneumatic connection of the element.



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Note

On elements with two pneumatic connections, close one connection with cap 000 987 11 45.

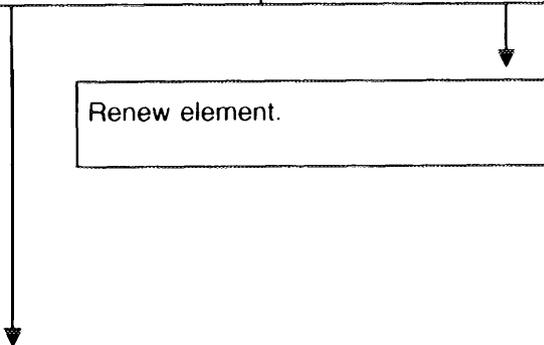
Test

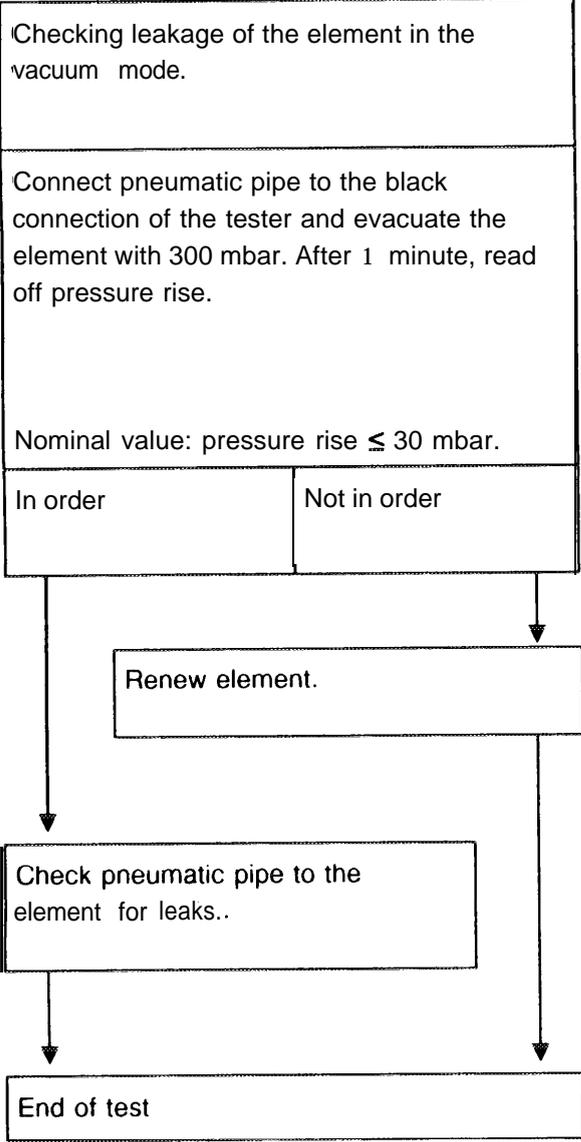
Check leakage of the element in the pressure mode.

Connect pneumatic pipe to the yellow connection of the tester and apply a pressure of 600 mbar to the element. After 1 minute, read off pressure drop.

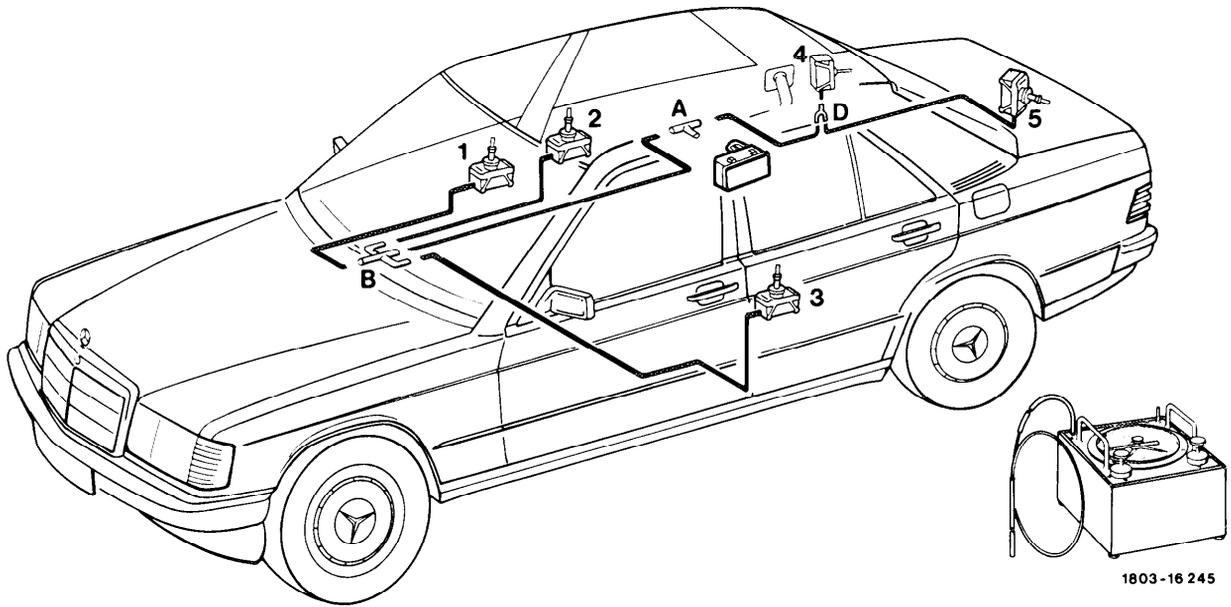
Nominal value: pressure drop \leq 30 mbar.

In order	Not in order
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80-120 Checking central locking system for leaks



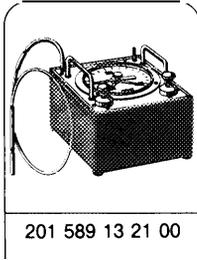
Connection or distribution fitting	Items to be tested	Subsequential test or remedy for leaks
A	<p>Entire system</p> <p>Elements and pneumatic pipes in the passenger compartment.</p> <p>Elements and pneumatic pipes in the trunk.</p>	<p>Check leaks on pipes to the passenger compartment or to the trunk.</p> <p>Check distribution fitting B for leaks.</p> <p>Check distribution fitting D for leaks.</p>

B	<p>Pneumatic pipe to the distribution fitting A.</p> <p>Element (1) front passenger door with connection fitting and pneumatic pipe.</p> <p>Element in the rear door right (2) with connection fitting and pneumatic pipe.</p> <p>Element in the rear door left (3) with connection fitting and pneumatic pipe.</p>	<p>Repair or renew.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p>
D	<p>Pneumatic pipe to the distribution fitting A.</p> <p>Element trunk lid (5) with pneumatic pipe and connection fitting.</p> <p>Element, tank flap (4).</p>	<p>Repair or renew.</p> <p>Check pipe, connection and element individually for leaks. Repair or renew defective parts.</p> <p>Renew.</p>

Data

Permissible leakage rate per minute of the entire system and elements at 600 mbar pressure and at 300 mbar vacuum	mbar	30
Permissible leakage rate per minute of individual pipes at 600 mbar pressure	mbar	0
Connection overlap length of the connection and distribution fittings	mm	12 ± 2

Special tool



Part required for the test

Part No.

Cap

000 987 11 45

Note

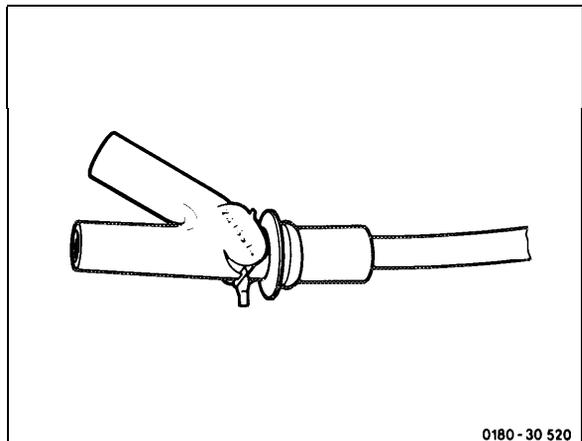
If not all elements work properly although no leaks could be detected, check the pipes, distribution and connection fittings concerned for kinks and free passage.

When conducting the leak test on individual pipes, connect the tester to one end of the pipe and close the other end with the cap 000 987 11 45.

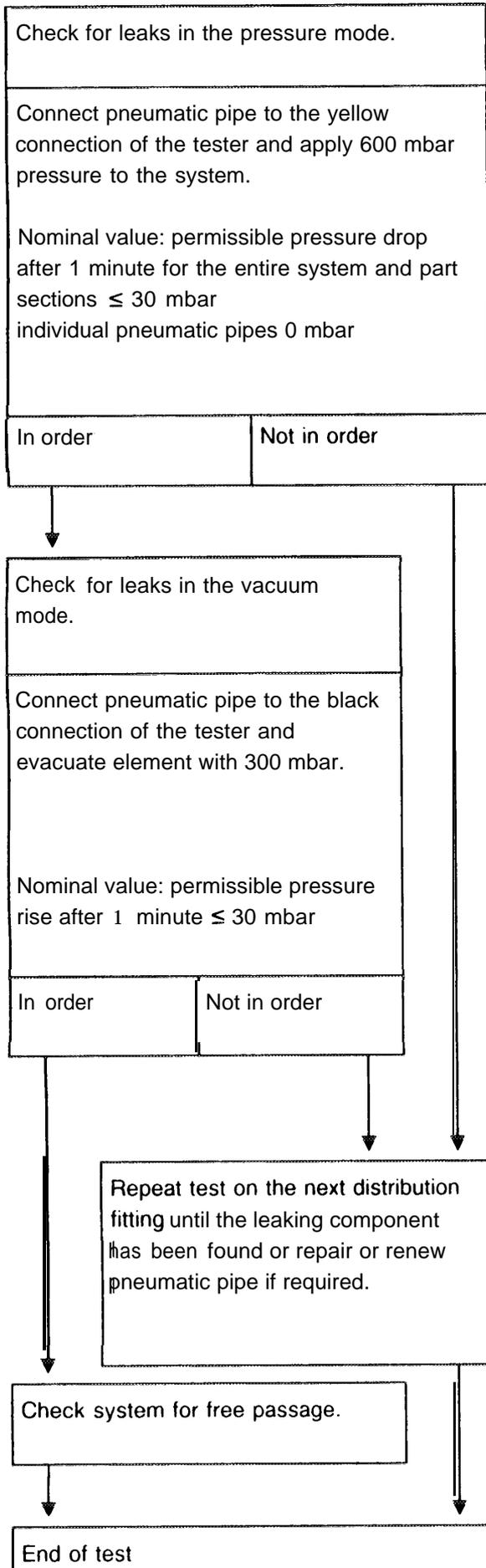
The following test can be applied to all points of the above mentioned table.

Test preparation

Connect tester for vacuum and pressure systems to the distribution fitting or pneumatic pipe.



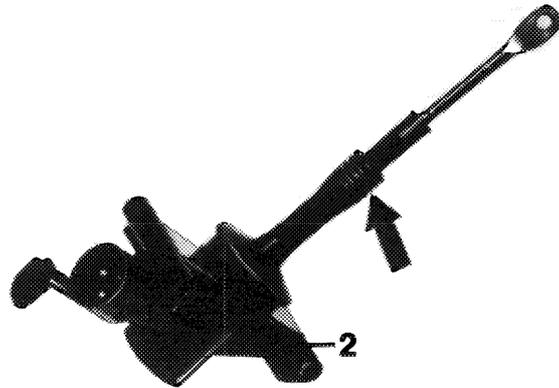
Test



80-205 Removal and installation of electric switch in the driver's door

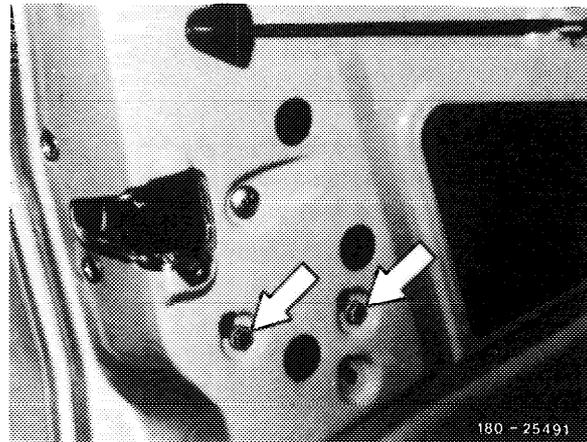
Removal

- 1 Remove door lining (72-1 00).
- 2 With the crank window closed, push sliding sleeve of the switch (arrow) fully down and disconnect control rod.



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- 3 Loosen attaching screws (22) of the switch. Remove switch from the door aperture.
- 4 Remove triple coupling from the switch.
- 5 Check switch (80-1 10).



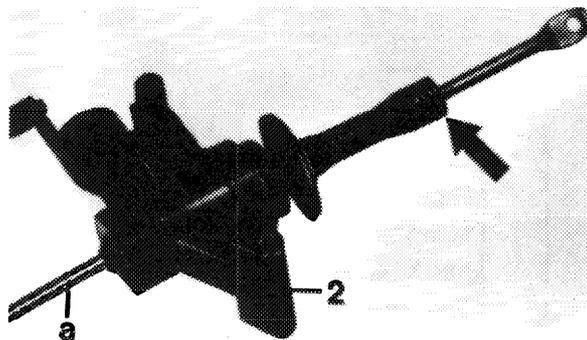
180 - 25491

Installation

- 6 Before installing the switch (2), push sliding sleeve (arrow) fully down, while counterholding from below by means of a 4 mm arbor (a).
- 7 Connect electrical cable harness and attach switch with the existing screws.

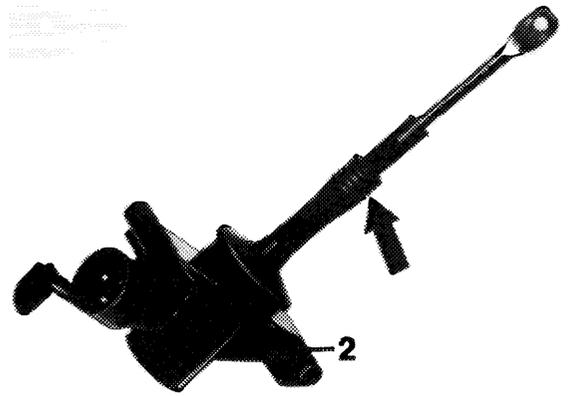
Adjusting control rod

- 8 Fully pull out locking pin of the door (unlock).



180 - 25746

9 Insert the control rod without preload into the rod connection of the switch and push the sliding sleeve (arrow) fully up.

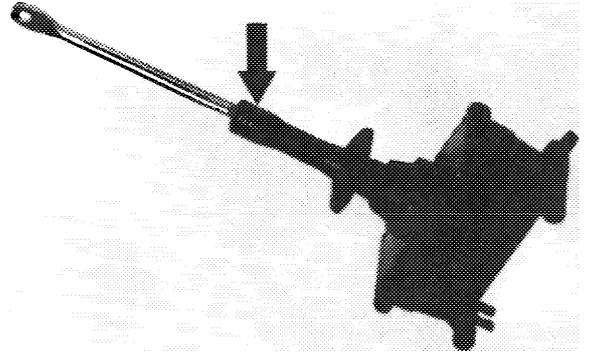


180 - 25745

80-210 Removal and installation of element in front passenger door

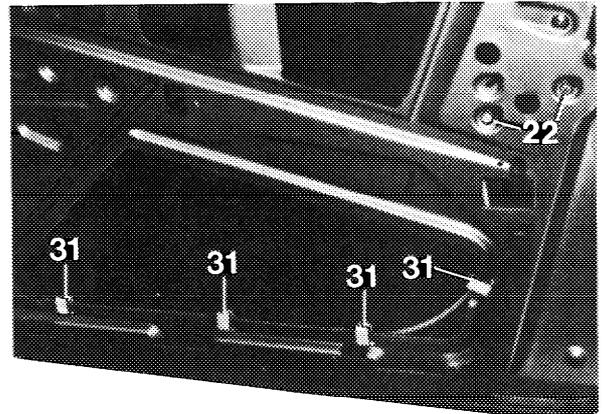
Removal

- 1 Remove door lining (72-100).
- 2 With the crank window closed, push sliding sleeve (arrow) fully down. To do so, pull hose off element and seal the element connection.



180-23829

- 3 Unscrew the attaching screws of the element at the points shown by the arrows, remove element from the door.



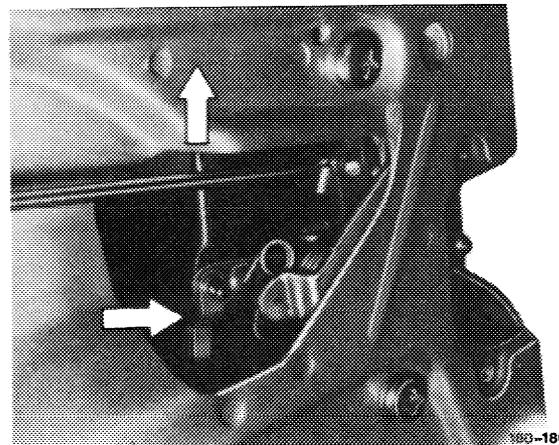
180-25655

Installation

The installation takes place in reverse order

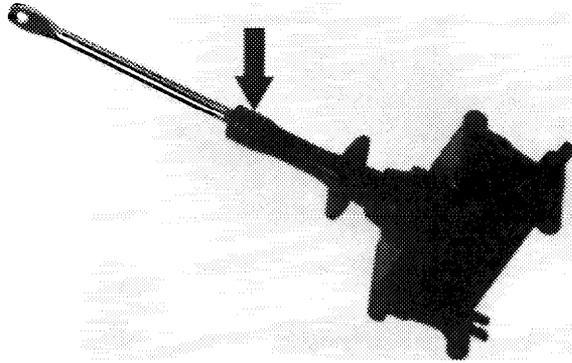
Adjusting the control rod

- 4 Fully pull out door locking pin (unlock).



180-18652

5 With the sliding sleeve pushed back (arrow), insert control rod without preload into the rod connection of the element and fully push up sliding sleeve (arrow).

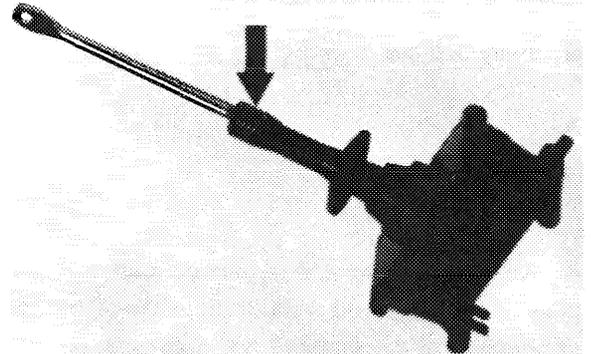


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80-220 Removal and installation of rear door element

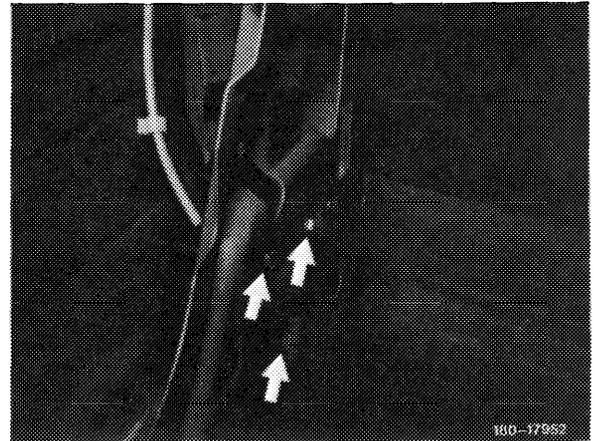
Removal

- 1 Remove door lining (72-101).
- 2 Slide sliding sleeve of the element (arrow) down. To do so, disconnect hose from the element and seal the connection from the element. Then disconnect control rod.



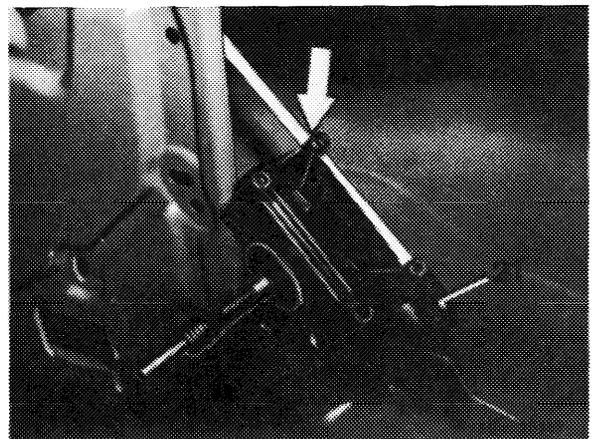
180-23929

- 3 Loosen attaching screws (arrows) of the element and disconnect element.



180-17952

- 4 Unclip the pneumatic pipe from the element (arrow) and pull off.

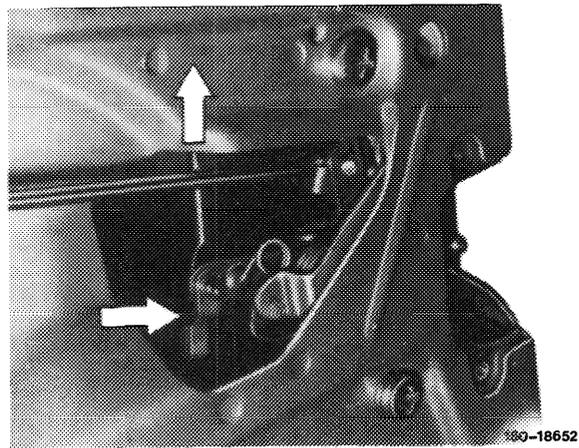


Installation

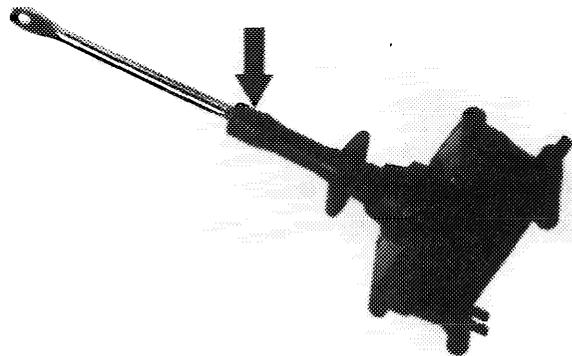
The installation takes place in reverse order.

Adjusting the control rod

5 Fully pull out door locking pin (unlock).



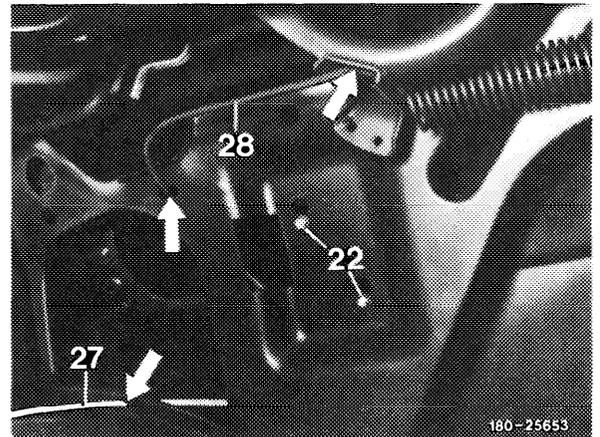
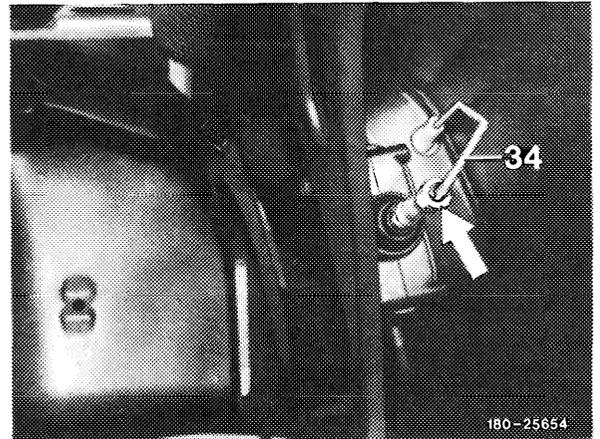
6 With the sliding sleeve pushed back (arrow), insert the control rod without preload into the rod connection of the element and fully push up sliding sleeve (arrow).



80-230 Removal and installation of tank flap element

Removal

- 1 Remove right trunk lining (68-480).
- 2 Disconnect pneumatic pipe from the element.
- 3 Hold control rod (34) and open sliding sleeve (arrow) in the direction of the element. Then disconnect the control rod (34).
- 4 Loosen attaching screws (22) of the element and disconnect the element.

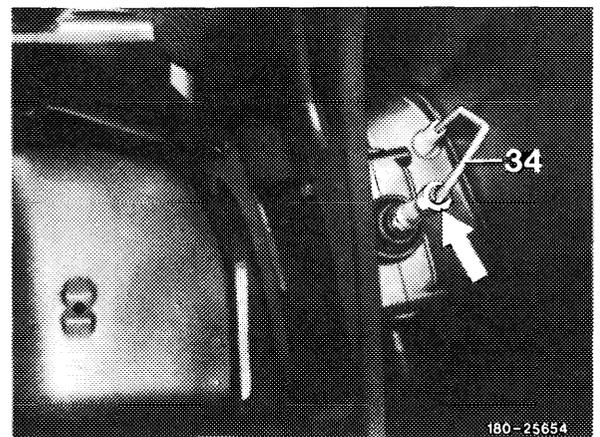


Installation

The installation takes place in reverse order. Note that the attaching screws should be half screwed into the element before installation.

Adjusting the control rod

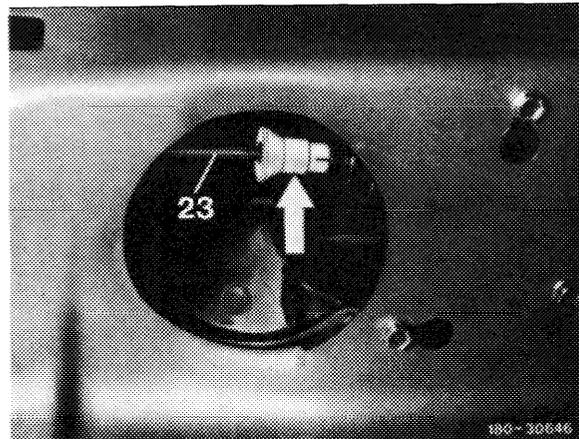
- 5 Insert control rod (34) in the guide sleeve of the tank flap. With the sliding sleeve pushed back (arrow), insert the control rod (34) with the thread into the rod connection until the control rod is flush with the guide sleeve in the tank flap. Then push guide sleeve (arrow) fully to the rear.



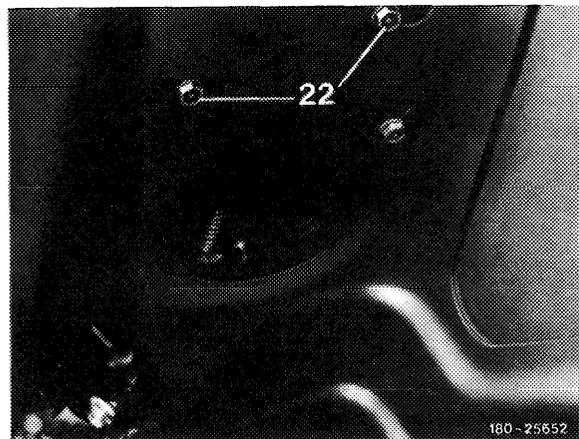
80-240 Removal and installation of trunk lid element

Removal

1 Fold control rod (23) and push sliding sleeve (arrow) back in the direction of the element. Then disconnect the control rod.



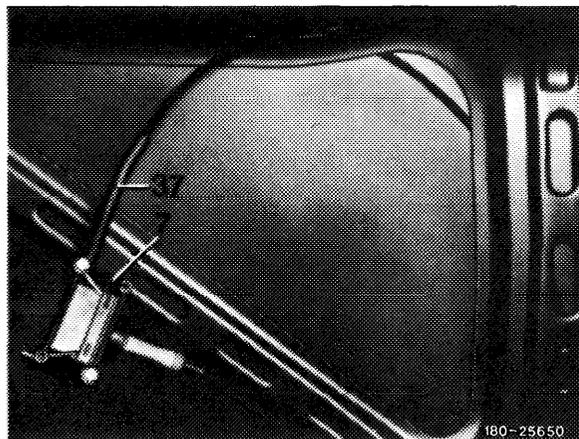
2 Loosen two screws (22).



3 Remove element and pull off connection hose (37).

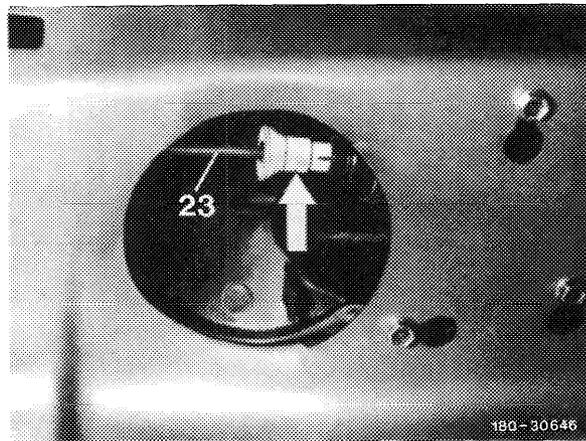
Installation

The installation takes place in reverse order. Note that the attaching screws should be screwed half into the element before the installation.



Adjusting the control rod

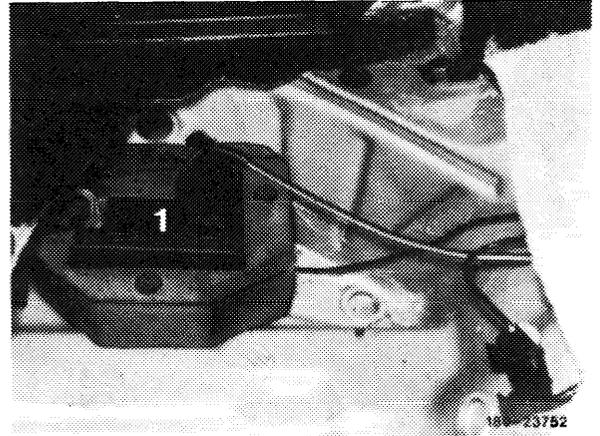
4 Insert the control rod of the rear lid lock at least 10 mm into the rod connection of the trunk lid element and fully push out sliding sleeve.



80-270 Removal and installation of supply pump

Removal

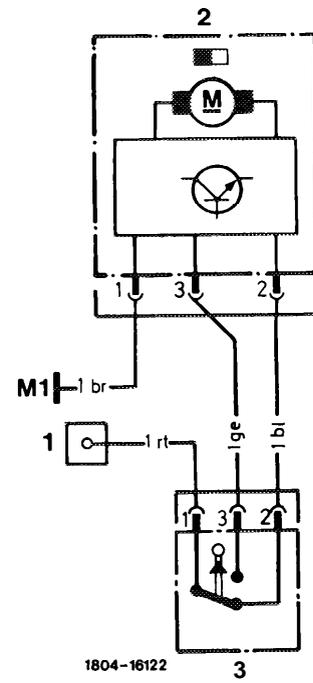
- 1 Remove rear seat cushion.
- 2 Open foam part.
- 3 Pull triple coupling and connection fitting off supply pump (1).



Installation

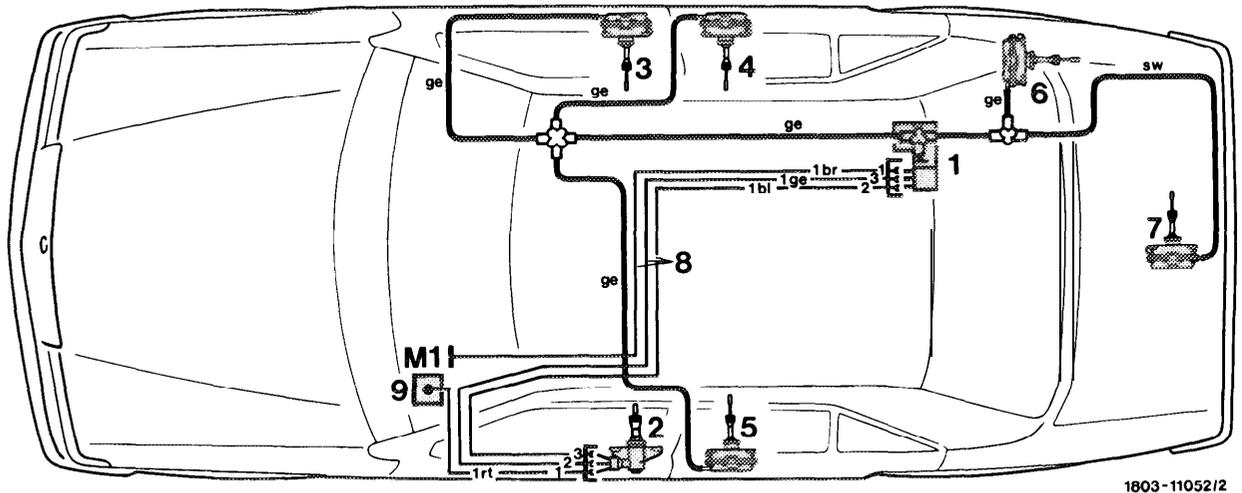
The installation takes place in reverse order.

80-800 Electrical wiring diagram



- 1 Terminal in the footwell front left
- 2 Supply pump
- 3 Switch in driver's door
- MI Main ground behind Instrument cluster

80-900 Function diagram

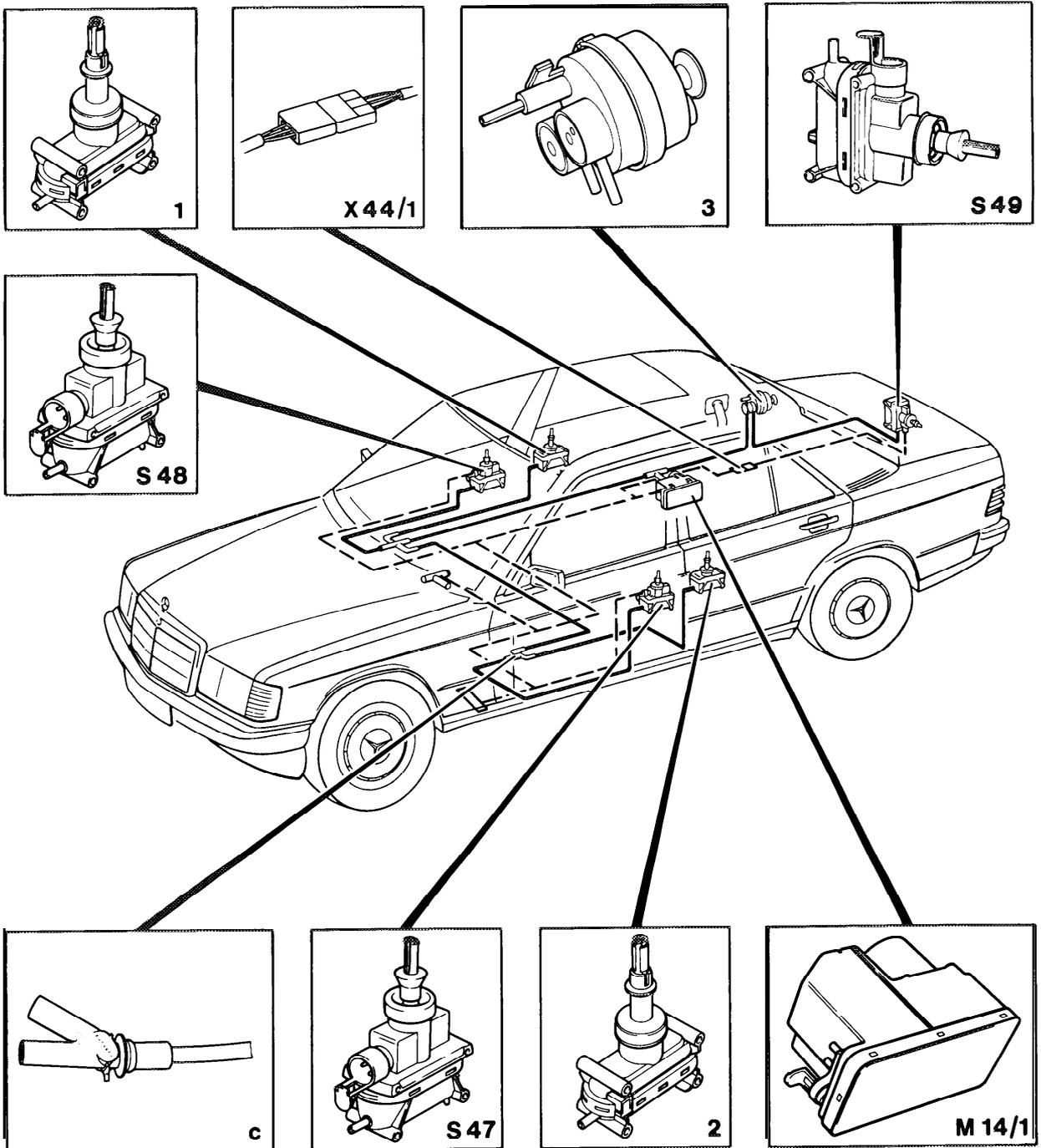


- | | | | |
|---|-------------------------------|----|---|
| 1 | Supply pump | 7 | Element, trunk lid lock |
| 2 | Switch in driver's door | 8 | Cable harness, central locking system
Yellow cable for unlocking
Blue cable for locking |
| 3 | Element, front passenger door | 9 | Terminal, circuit 30 |
| 4 | Element, rear door right | MI | Mainground (behind instrument cluster) |
| 5 | Element, rear door left | | |
| 6 | Element, tank flap | | |

Note

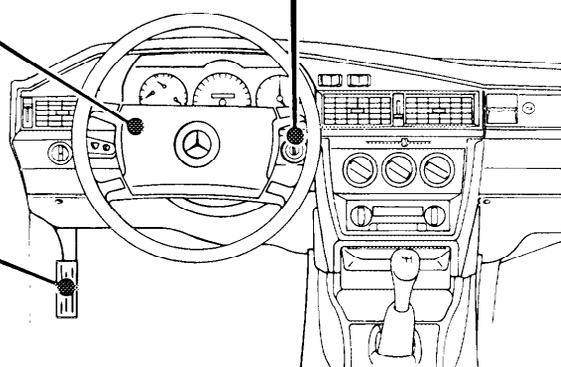
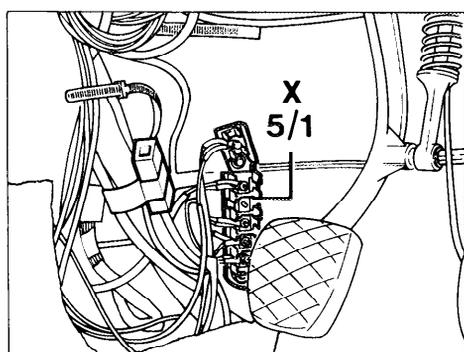
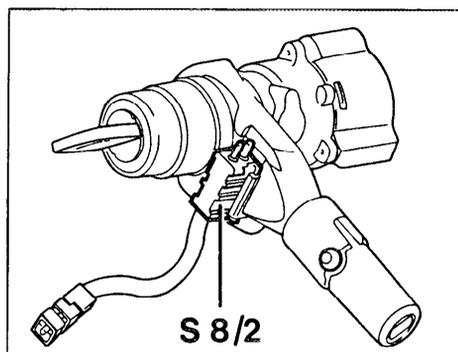
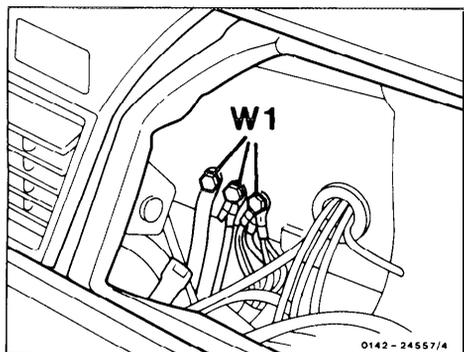
On RHD vehicles, the parts 2, 3, 9 and MI are arranged in mirror image.

A. General



1802-18 308

- | | | | |
|-----|--------------------------|-------|--|
| 1 | Element, rear door right | M14/1 | Supply pump central locking system |
| 2 | Element, rear door left | s47 | Control and working element, driver's door left |
| 3 | Element, tank flap | S48 | Control and working element, driver's door right |
| C | Distribution fitting | s49 | Control and working element, trunk lid lock |
| --- | Electrical cable | x44/1 | Connector, central locking system/trunk lid lock |
| — | Pneumatic pipe | | |



1803-16 309

- S8/2 Warning buzzer contact, lighting/centrallocking system
- W1 Maw ground (behind instrument cluster)
- X5/1 Connector, interior, terminal 15/30

The multi-point controlled central locking system is based on the central locking system with single-door control. Central locking or unlocking is possible from the driver's door and front passenger door as well as from the trunk lid by actuating the key or the locking pin. All doors, the trunk lid and the tank flap are incorporated into the central locking system.

B. Operation

Driver's door

With the driver's door closed, the central locking system can always be operated. From the outside by means of the key, (locking by turning fully to the right, unlocking by turning fully to the left), from the inside by pressing the locking pin or pulling the handle in the door lining.

Front passenger door

The central locking system can be operated from the closed or opened front passenger door by means of the key, the locking pin or handle (similar to the driver's door).

However, central locking is only possible if the ignition key has been removed or, after it has been removed, is inserted again but not actuated (key position 0 in the steering lock). This procedure prevents an inadvertent locking-out in key positions 1 and 2 via the front passenger door.

Trunk lid

The central locking system can be operated with the key while the trunk lid is open or closed.

Unlocking:

Fully turn the key to the left and remove in vertical position.

Locking:

Fully turn the key to the right and remove in vertical position.

Additional locking:

Fully turn the key to the right and remove in the horizontal position. The trunk lid remains locked even with central unlocking of the doors.

Note

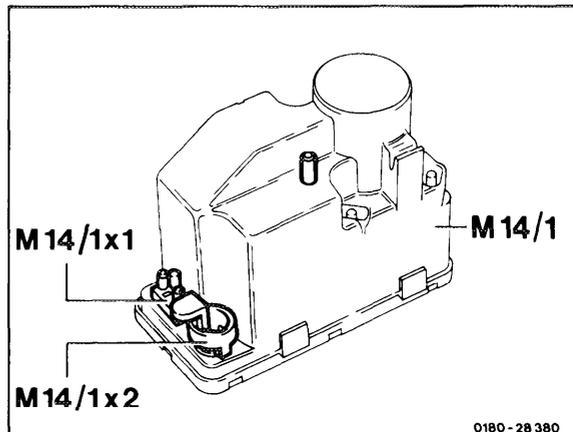
If the trunk lid is unlocked with the centrally locked vehicle, all doors and the tank flap are also unlocked. After closing the trunk lid, the vehicle must again be centrally locked.

C. Components

Supply pump (M14/1)

1st version, up to approx. 04/86.

The supply pump for multi-point control is provided with two electrical connections. Owing to the modified electronic switching function, this supply pump is not interchangeable with the previously known supply pump (single-door control).



The 2-pole connector (MI 4/1 x1, on vehicles with orthopedic driver's backrest, 3-pole MI 4/2x1) connects the supply pump with plus (terminal 30) and ground (terminal 31). Via the connector (MI 4/1 x2) the supply pump receives a negative control voltage from the control and working elements during locking and a positive control voltage during unlocking.

The supply pump generates pressure for unlocking and vacuum for locking (approx. 500 mbar).

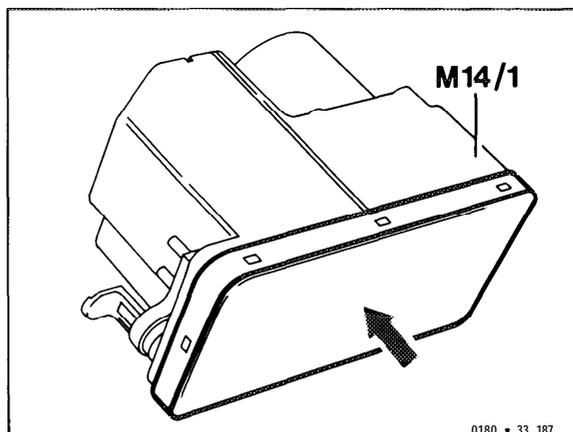
With severe leaks, the supply pump switches off after 25-150 s (safety switching time).

The electronic control is equipped with several logic functions which avoid wrong connections and faults.

2nd version as of approx. 05'86

The supply pump control is equipped with a " Full Customer IC" .

Besides the previous functions, this IC has the duty of recognizing faulty currents, in this way avoiding spontaneous functions due to creeping currents and switching off of the control inputs concerned. The supply pump can be identified by the light cover (arrow), previously black.



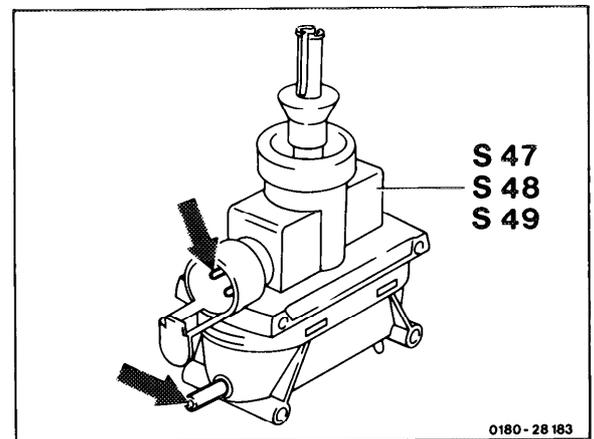
The electrical cable harness was revised at the same time. The ground cable of the control and working element for the trunk lid lock (S49) is now connected directly to the main grounding point (see electrical circuit diagrams 80-800); previously connected to the warning buzzer contact, lighting/central locking system (S8/2).

Production breakpoint: as of vehicle ident end No. A 301 102, F 229413.

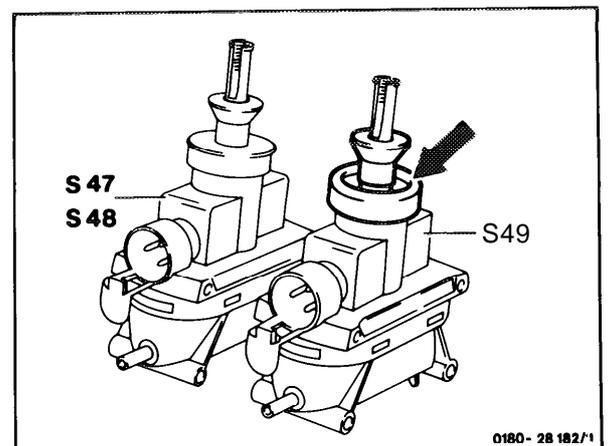
In vehicles with lower vehicle ident end No., the modified supply pump may not be installed. The previous version continues to be applicable to these vehicles.

Control and working element (S47, S48, S49)

A combined control and working element is installed in the driver's and front passenger doors as well as in the trunk lid. This element is provided with an electrical and a pneumatic connection (arrows).



The elements for the doors are black. The element for the trunk lid has a boot or sliding sleeve (arrow) deviating in color. During repairs ensure that the elements are not interchanged, as the trunk lid element is provided with a harder boot for locating the upper and lower end stop.



- S47 Control and working element, driver's door left
- S48 Control and working element, driver's door right
- S49 Control and working element, trunk lid lock

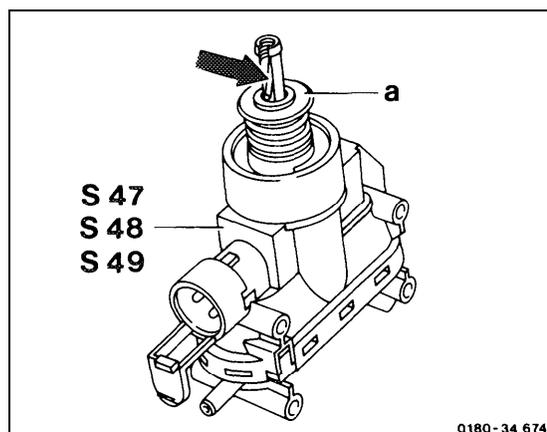
The electric and pneumatic functions of all control and working elements are identical. The electric switch in the upper part of the element is constantly connected to positive and ground. The changeover switch sends a positive control voltage to the supply pump for unlocking and a negative control voltage for locking.

The lower chamber of the element is provided with pressure for unlocking and with vacuum for locking.

The electric and pneumatic sections of the element can be separated by a detent, in order to allow lock operation even with the element subject to pressure or vacuum.

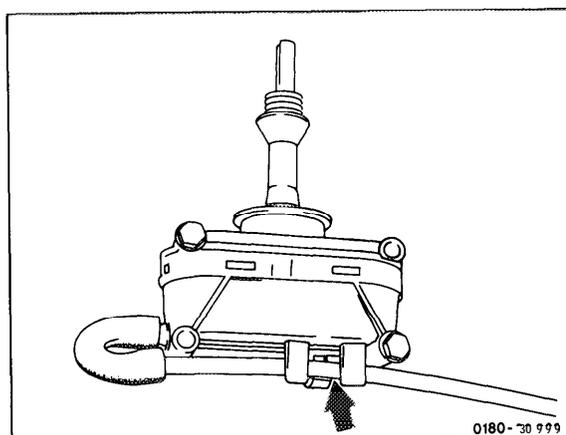
Sliding sleeve lock (as of approx. 12 86 phased-in)

Inadvertent adjusting of the sliding sleeve (a) is avoided by means of an integrated support (arrow). When inserting the connecting rod to the lock the adjusting lock is cancelled. Consequently the element is in the installation position. Adjusting faults on the door elements are no longer possible.



Rear door element

A pneumatic connection is provided on the rear door element. The lower chamber of the element is supplied with pressure for unlocking and with vacuum for locking. A clip (arrow) for attaching the pneumatic pipe is provided on the housing lower part.



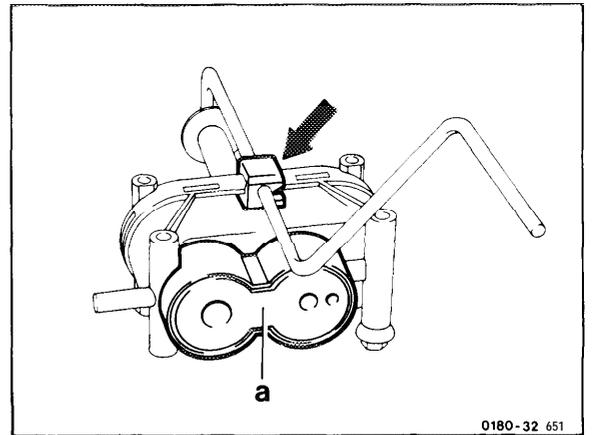
Tank flap element

1st version up to approx. 03/85

With regard to design and function, the element corresponds with the rear door element, but is provided with a harder boot for locating the upper and lower end stop. The distinguishing feature is the yellow sliding sleeve.

2nd version as of approx. 03/85 to approx. 03/87

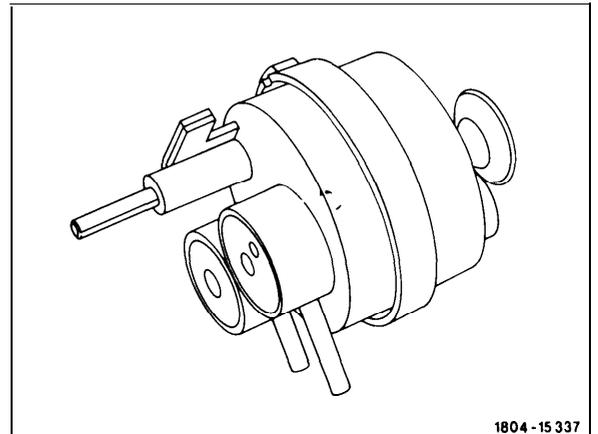
Element similar to the 1st version, however with anti-theft protection (a) and linkage guide (arrow). The anti-theft device prevents manual unlocking of the element via the tank flap.



3rd version

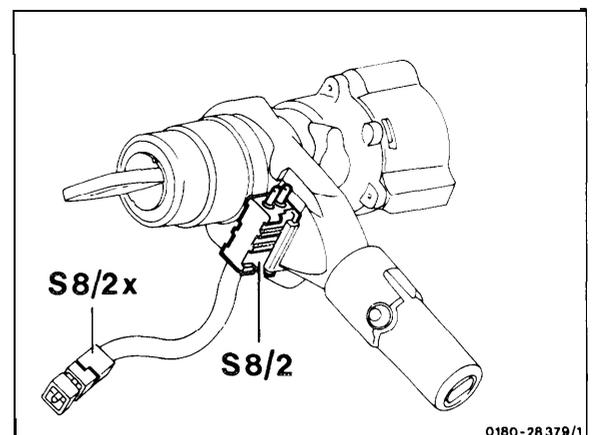
As of approx. 04/87, A 378642, F 357461

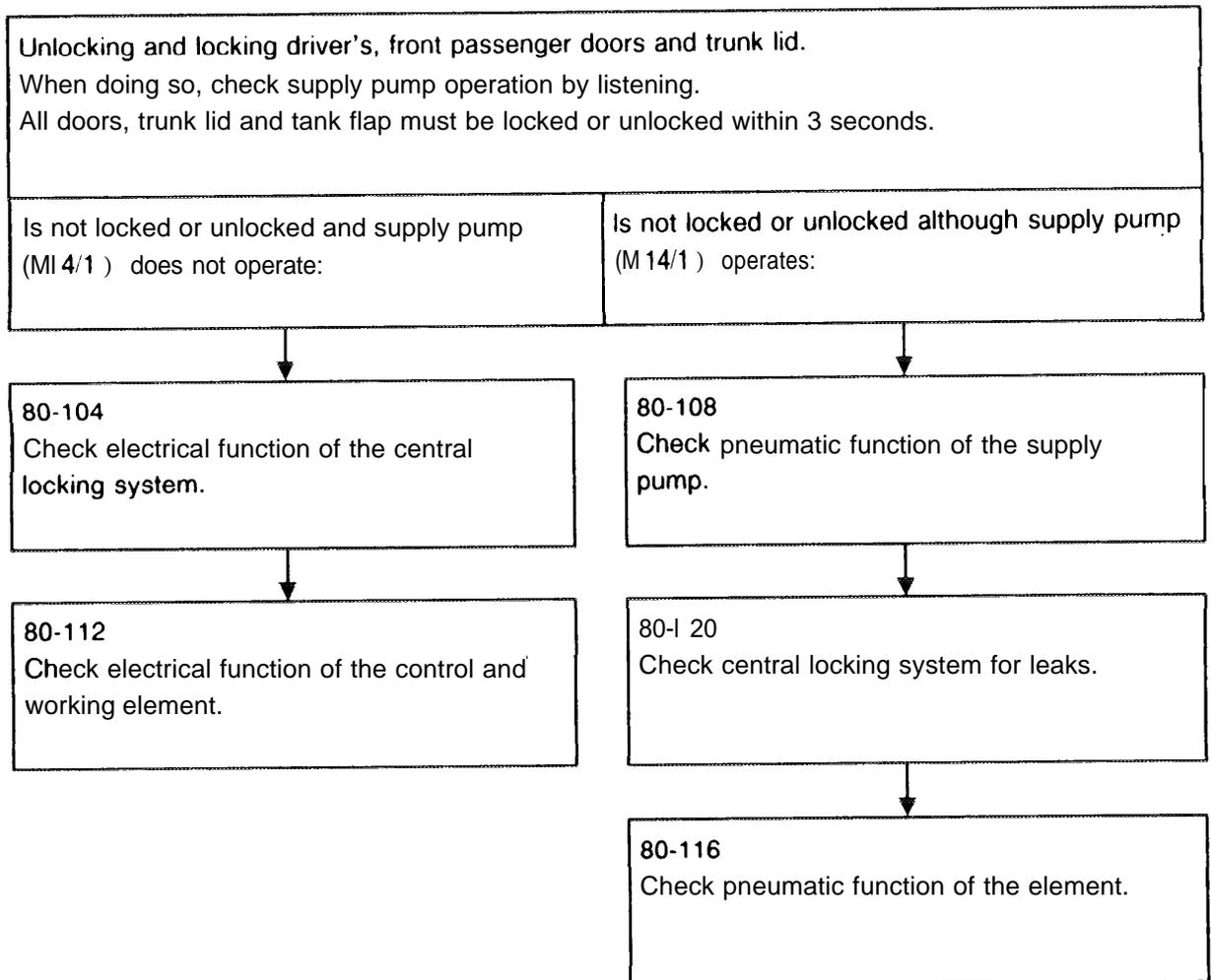
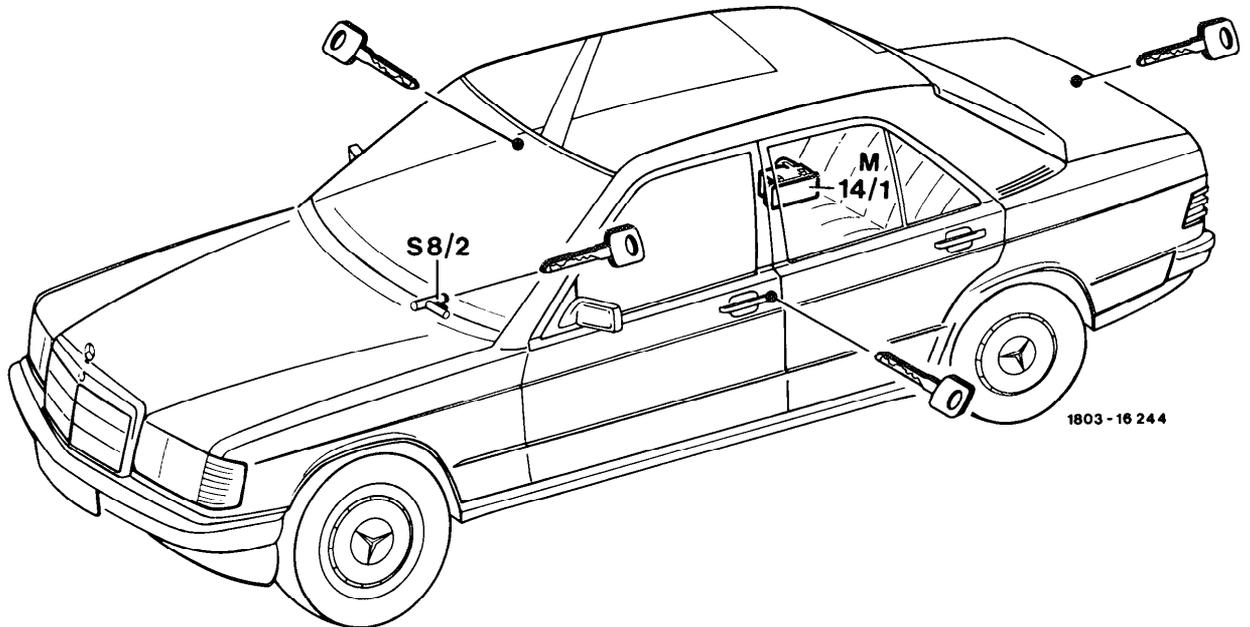
Clip-type element with direct locking linkage, anti-theft device and emergency unlocking button.



Warning buzzer contact, lighting/central locking system (S8/2)

This switch on the steering lock interrupts the ground connection to the control and working element in the front passenger door if the ignition key in the steering lock is in positions 1 or 2. In addition, ground connection to the control and working element in the trunk lid lock is interrupted as of approx. 05/85 to approx. 04/86.





After repairs, additionally check:

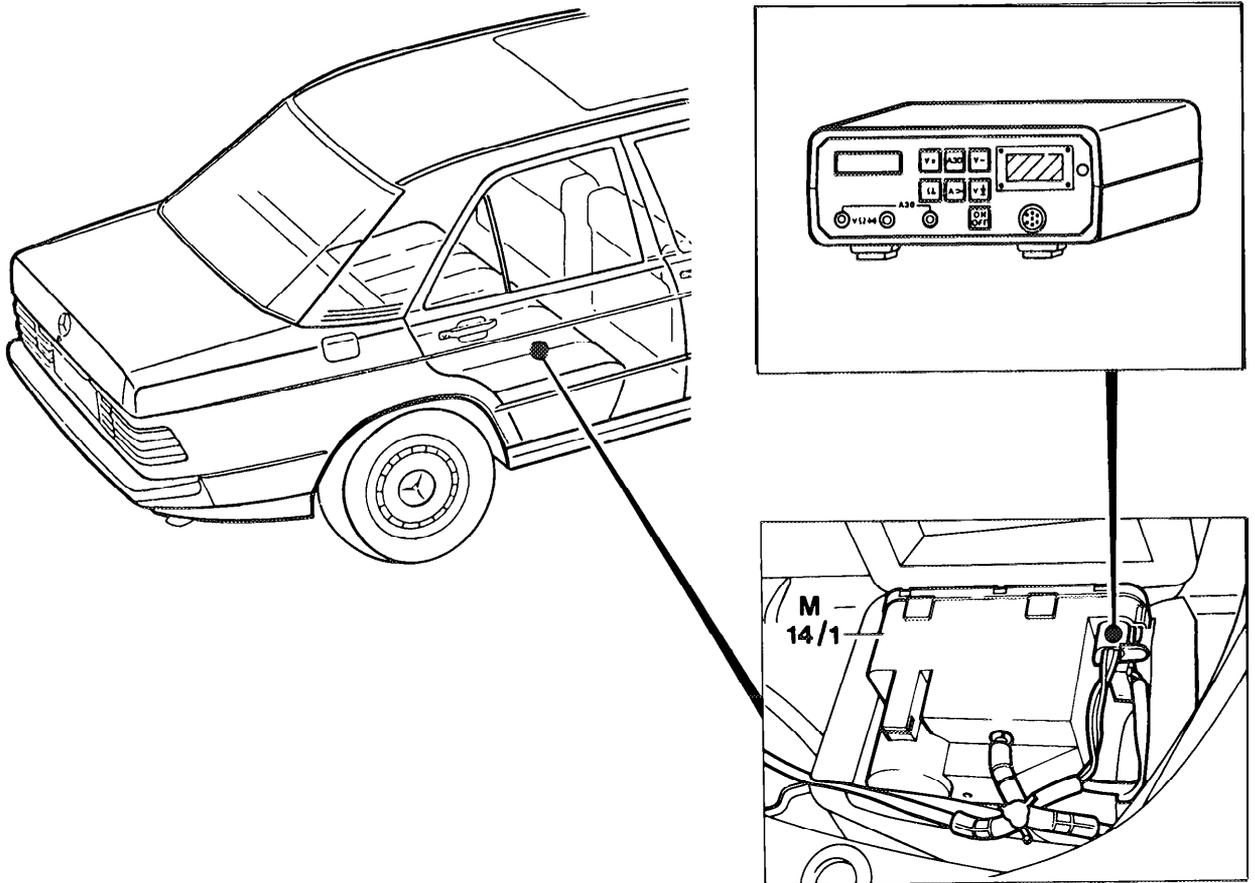
Control and working element adjustment

To do so, slowly lock driver's and front passenger doors with a key and observe locking button on the other doors. After 6-8.5 mm travel of the locking button, the central locking system of the vehicle must have locked, if not, remove, install and adjust control and working element (80-215).

Locking-out protection on the front passenger door

Insert key in steering lock position 1 or 2 and press locking button on the front passenger door through the open window. The central locking system should not lock, renew warning buzzer contact lighting/central locking system (S8/2) (46-640) if required.

80-I 04 Checking electrical function of the central locking system



1803 - 16 265

Test preparation

Check voltage supply of the supply pump

Check control voltage with vehicle unlocked

Check control voltage with vehicle locked

Check contacts of the coupling on the supply pump

Items I-6

Battery voltage (> 10 V)

Battery voltage (> 10 V)

Battery voltage (> 10 V)

According to condition: Eliminate faulty contacts or renew supply pump.

Commercially available tool

Digital multimeter

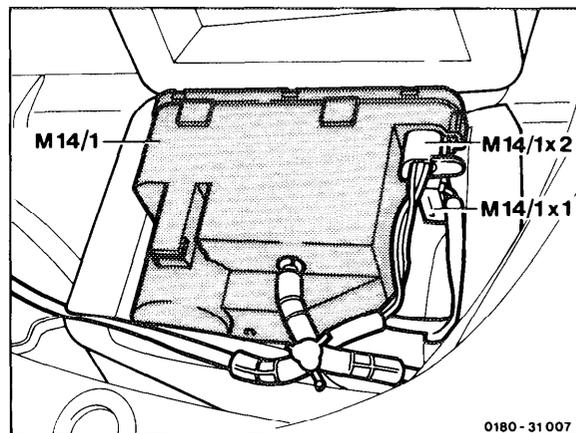
e.g. SUN DMM-5

Note

On vehicles with **EDW system**, disconnect intermediate plug of the EDW cable harness from the connector (MI 4/1x2) or (MI 4/2x2) and connect central locking system cable harness directly to the supply pump. Again check function of central locking system. If function is o.k., check EDW system.

Test preparation

- 1 Expose supply pump (M14/1) and remove from the protective foam material cap (80-270).
- 2 Check fuse for central locking system, see enclosure in fuse box lid.
- 3 Remove key from steering lock.
- 4 Close driver's and front passenger doors.
- 5 Disconnect coupling (M14/1x1) of the electrical cable harness from the supply pump (M14/1).
- 6 Open coupling housing and reconnect jacks without housing (brown cable = ground).

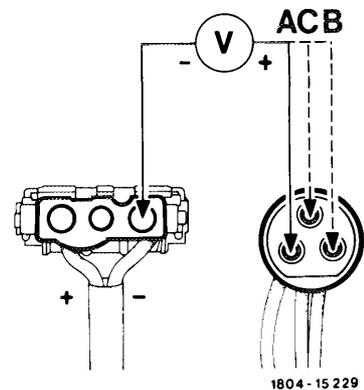
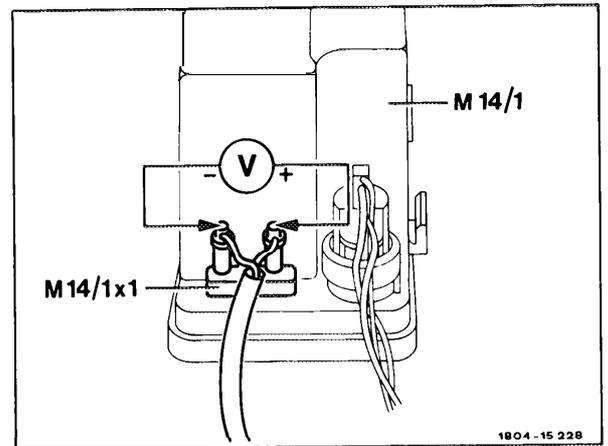


Test

Check voltage supply of the supply pump.	
Connect digital multimeter as shown in the figure. Lock and unlock central locking system with the key. Then reinstall coupling housing.	
Nominal value: battery voltage > 10 V	
Yes	No

Check voltage supply according to wiring diagram (80-800).

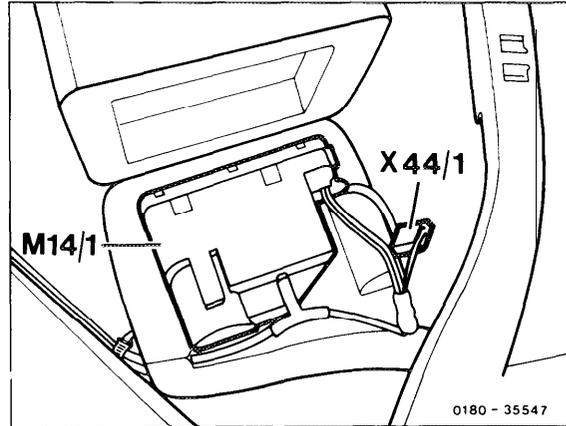
Check control voltage with vehicle unlocked.	
Unlock central locking system at all 3 operating points with the key.	
Connect digital multimeter to the two couplings of the cable harness as shown in the figure one after the other in positions A , B and C (flat portion of the round coupling facing down).	
Nominal value in position A, B and C: battery voltage > 10 V	
Yes	No



No battery voltage in position:
 A Check control and working element front passenger door (80-112).
 B Check control and working element driver's door (80-I 12).
 C Check control and working element trunk lid lock (80-I 12).

Note

Before the test, check the contacts of the connector central locking system trunk lid lock (X44 1) (see figure).



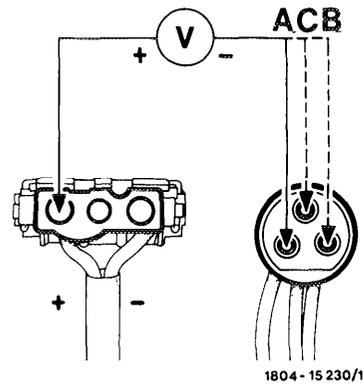
0180 - 35547

Check control voltage with vehicle locked.

Lock central locking system at all 3 operating points with the key.

Connect digital multimeter to the two couplings of the cable harness as shown in the figure one after the other in positions A, B and C (flat portion of the round coupling facing down).

Nominal value in positions A, B and C:
 battery voltage > 10 V.



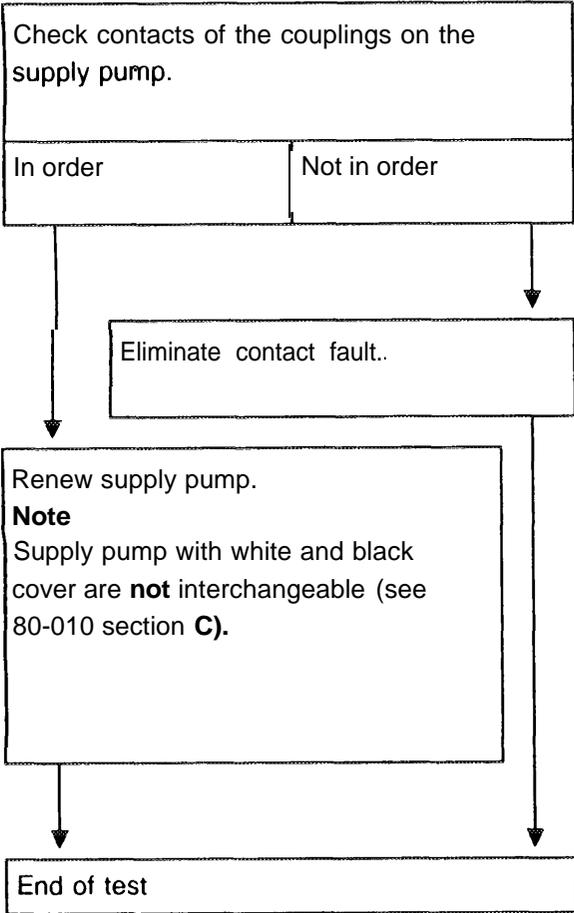
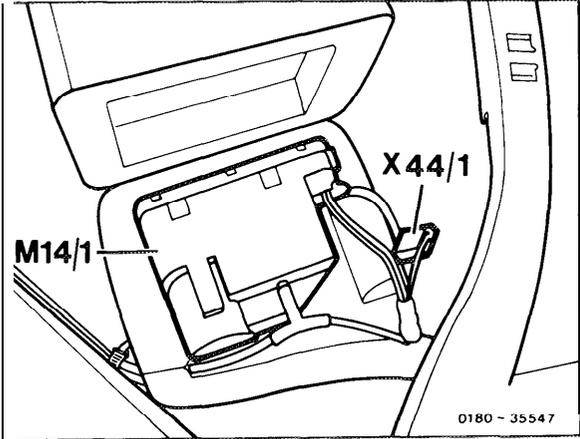
1804 - 15 230/1

Yes

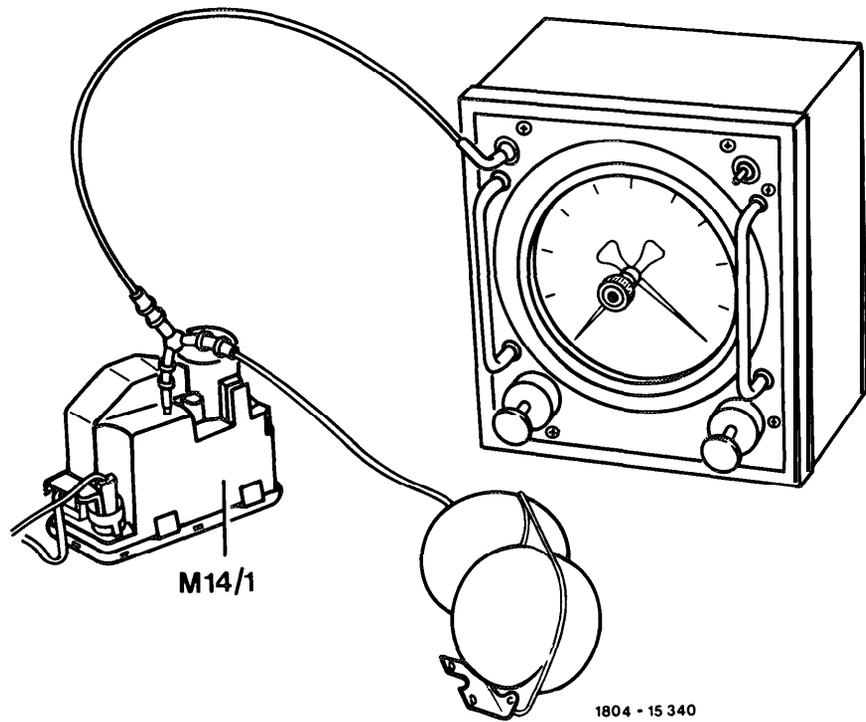
No

No battery voltage in position:
 A Check control and working element front passenger door (80-112).
 B Check control and working element driver's door (80-I 12).
 C Check control and working element trunk lid lock (80-I 12).

Note
 Before the test, check the contacts of the connector central locking system/trunk lid lock (X44/1) (see figure).

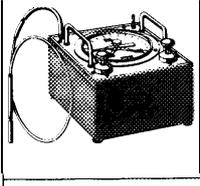


80-108 Checking pneumatic function of the supply pump



Test preparation	Items 1-3
Checking vacuum of the supply pump during locking	> 420 mbar in ≤ 3 s
Checking pressure of the supply pump during unlocking	> 420 mbar in ≤ 3 s
Checking safety switching time when the supply pump is separated from the pipe system	approx. 25-150 s.

Special tool



201 589 13 21 00

Parts required for the test

Part No.

Tank	107 800 08 19
Distribution fitting	117 078 01 45
Plug	000 987 11 45

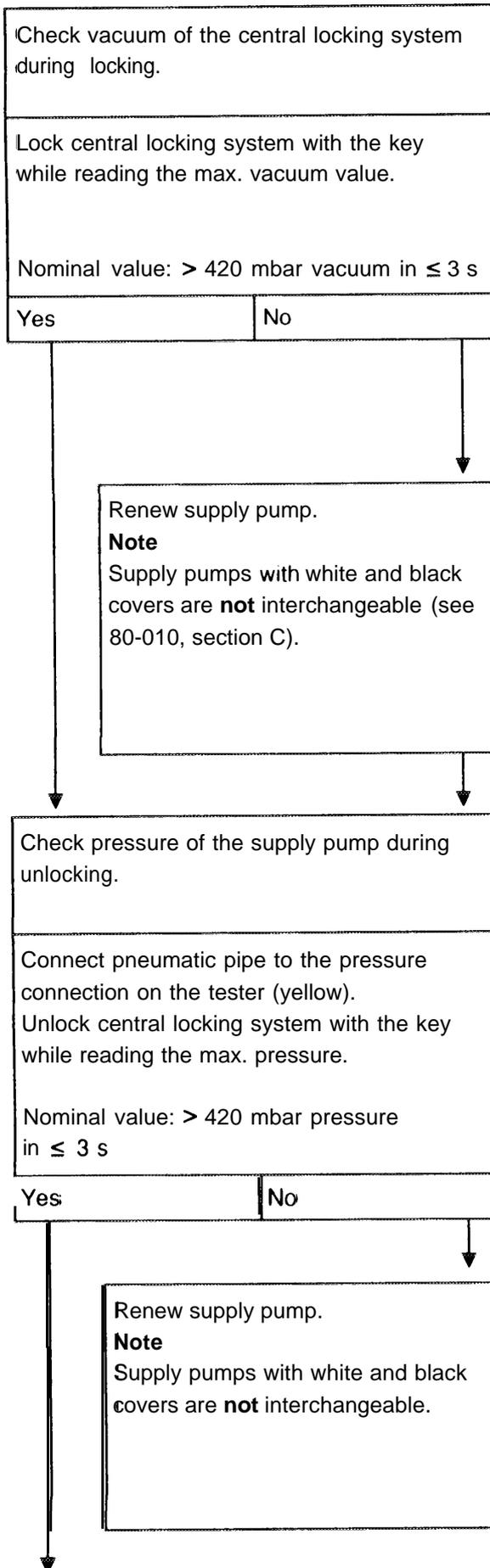
Test preparation

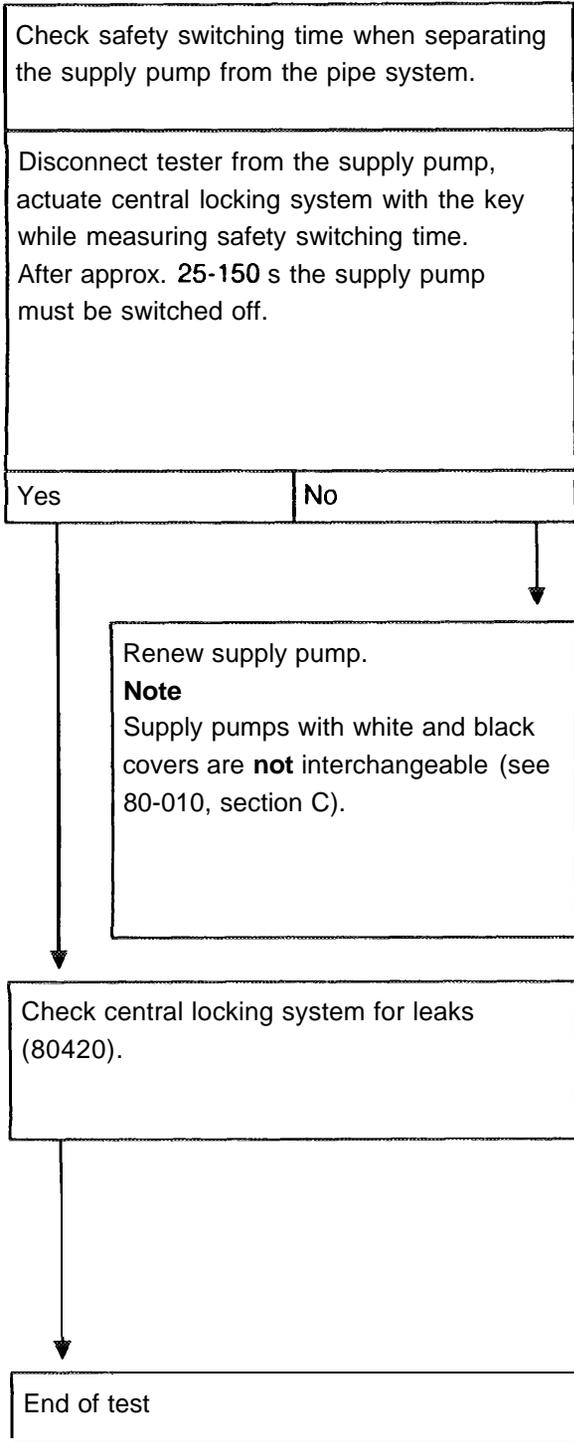
- 1 Connect tank with distribution fitting to the tester for vacuum and pressure systems to the vacuum side (black connection).
- 2 Remove supply pump and disconnect pneumatic pipe (80-270).
- 3 Connect tester for vacuum and pressure systems with tank to the supply pump (M14/1).

Note

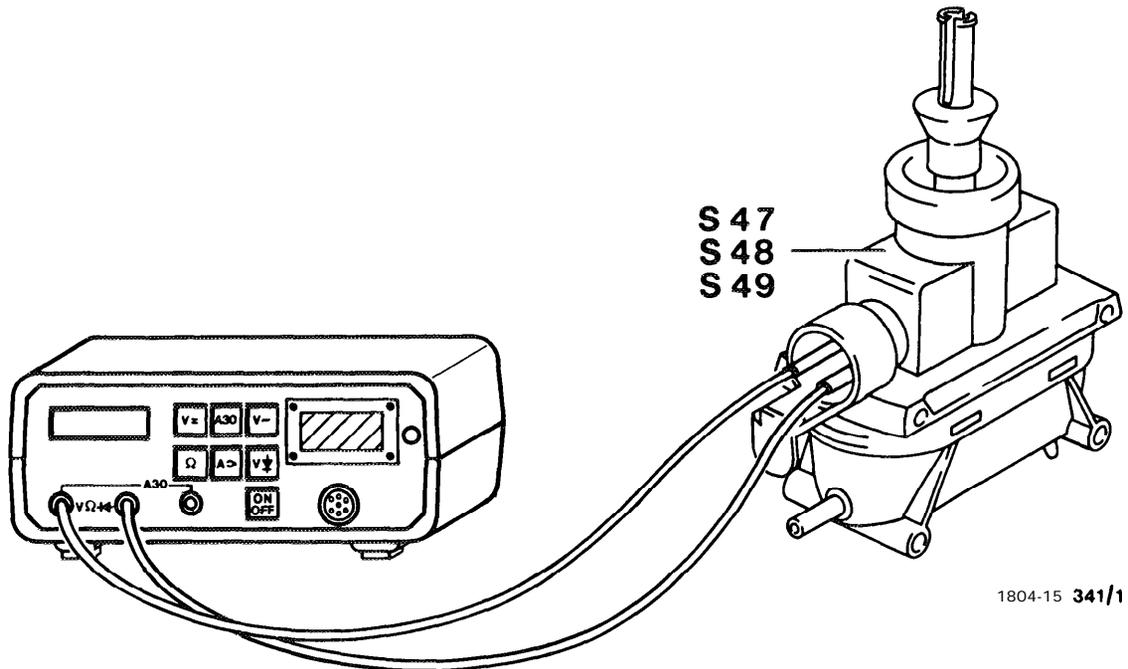
On the supply pump with pneumatic connection for orthopedic backrest, close the connection with plug part No. 000 987 11 45.

Test





80-112 Checking electrical function of the control and working element



Test preparation	Items 1-3
Locking function of the control and working element	Check
Opening function of the control and working element	Check
Voltage supply to the control and working element	Check

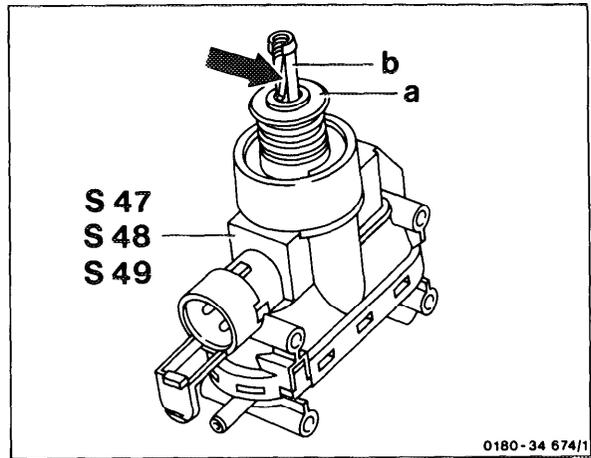
Commercially available tool

Digital multimeter

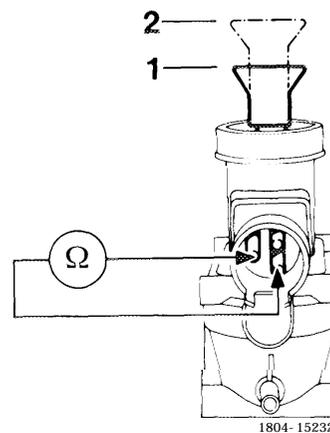
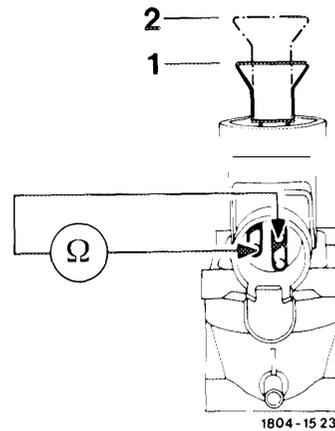
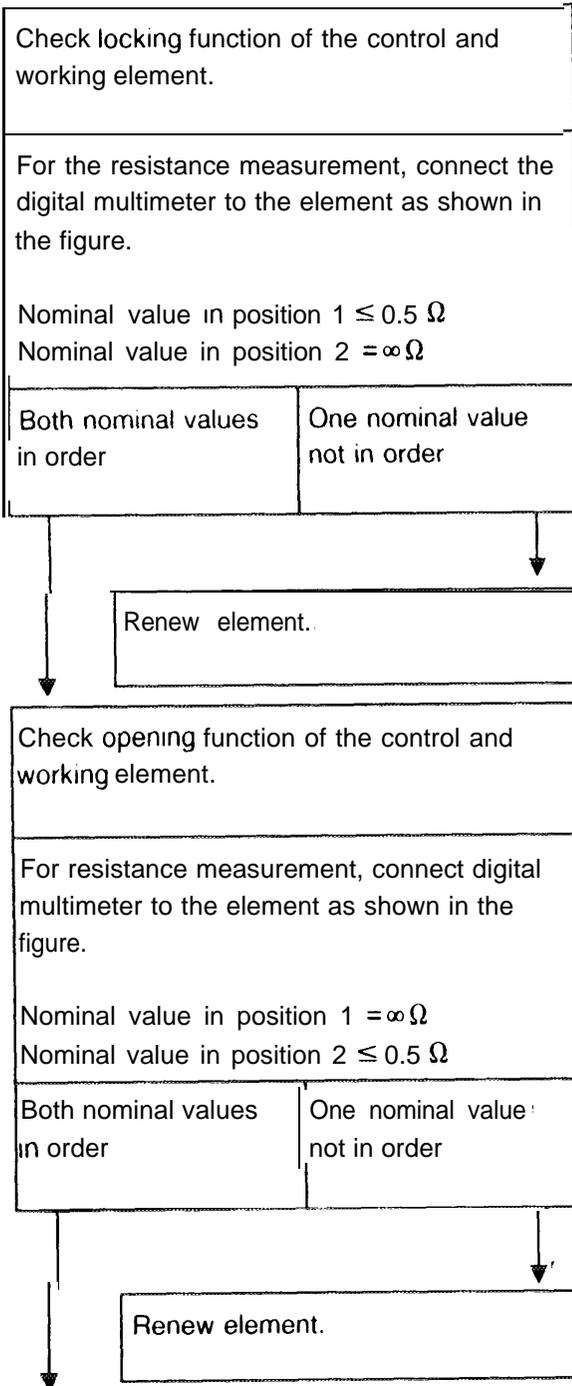
e.g. SUN, DMM-5

Test preparation

- 1 Remove control and working element (80-215).
- 2 Disconnect electrical cable harness and pneumatic pipe.
- 3 Slide sliding sleeve (a) over the control rod attachment (b) while pushing the sliding sleeve lock (arrow) if required.



Test

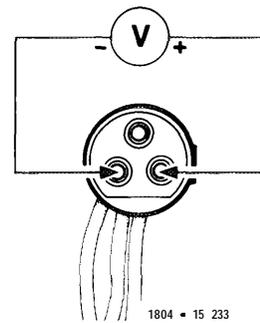


Check voltage supply of the control and working element.

Connect digital multimeter to the electrical cable harness as shown in the figure (ignition key on the steering lock removed).

Nominal value: battery voltage > 10 V.

Yes	No
-----	----

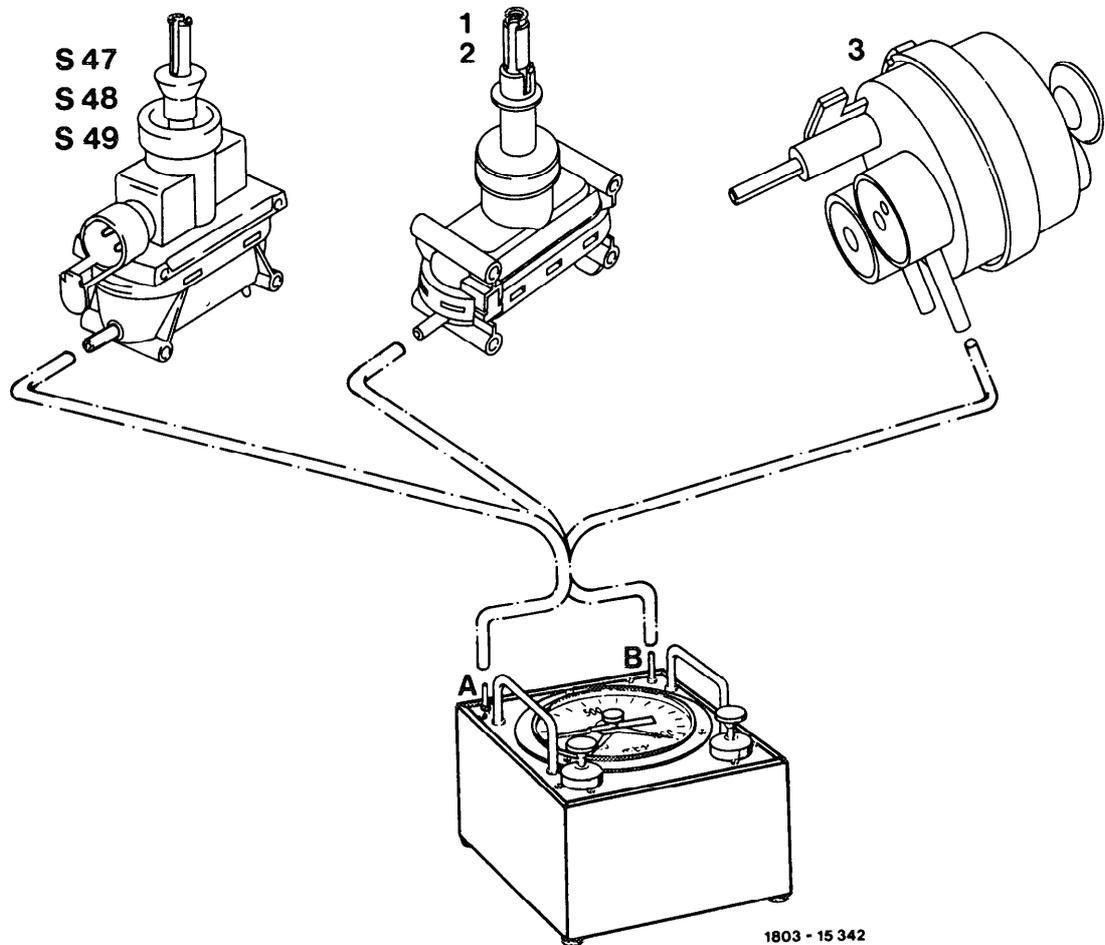


1 Check contacts of connectors.
2 Check cable, terminal 30 (red), ground wire (brown) warning buzzer contact S8 '2 and its ground cable (brown) for continuity according to wiring diagram (80-800). Repair or renew cable harness if required.

1 Check contacts of the connectors.
2 Check control cable (driver's door blue, front passenger door green, trunk lid yellow) for continuity according to the wiring diagram (80-800).
Repair or renew cable harness if required.

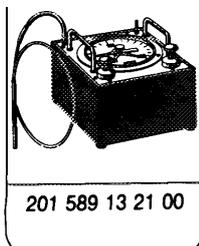
End of test

80-116 Checking pneumatic function of the element



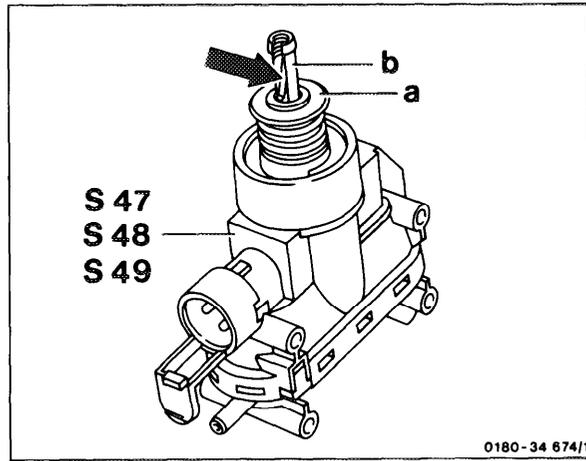
Test preparation	Items I-4
Checking the element for leaks in the pressure mode	Permissible leakage rate per minute at 600 mbar pressure = 30 mbar.
Checking leakage rate of the element in the vacuum mode	Permissible leakage rate per minute at 300 mbar vacuum = 30 mbar.

Special tool



Test preparation

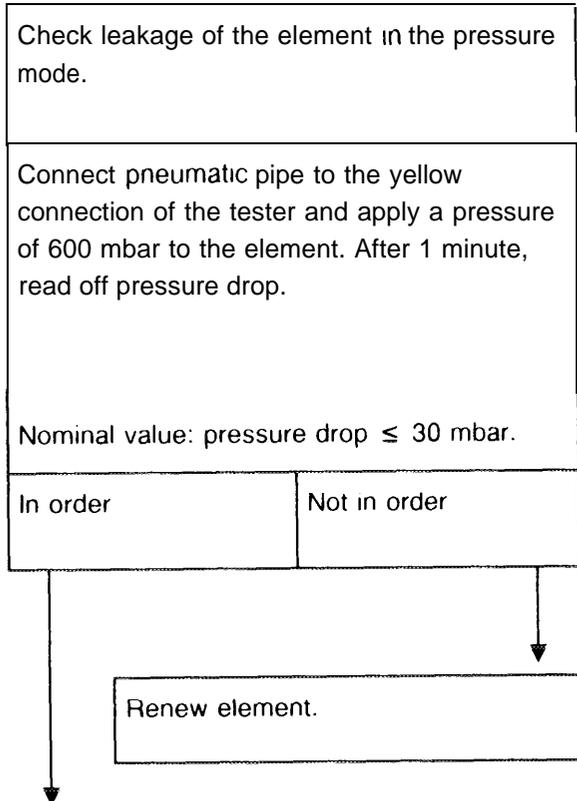
- 1 Remove element (80-215, 80-220, 80-230).
- 2 Disconnect electrical cable harness and pneumatic pipe.
- 3 Slide sliding sleeve (a) over the control rod attachment (b) while pushing the sliding sleeve lock (arrow) if required.
- 4 Connect tester for vacuum and pressure systems to the pneumatic connection of the element.

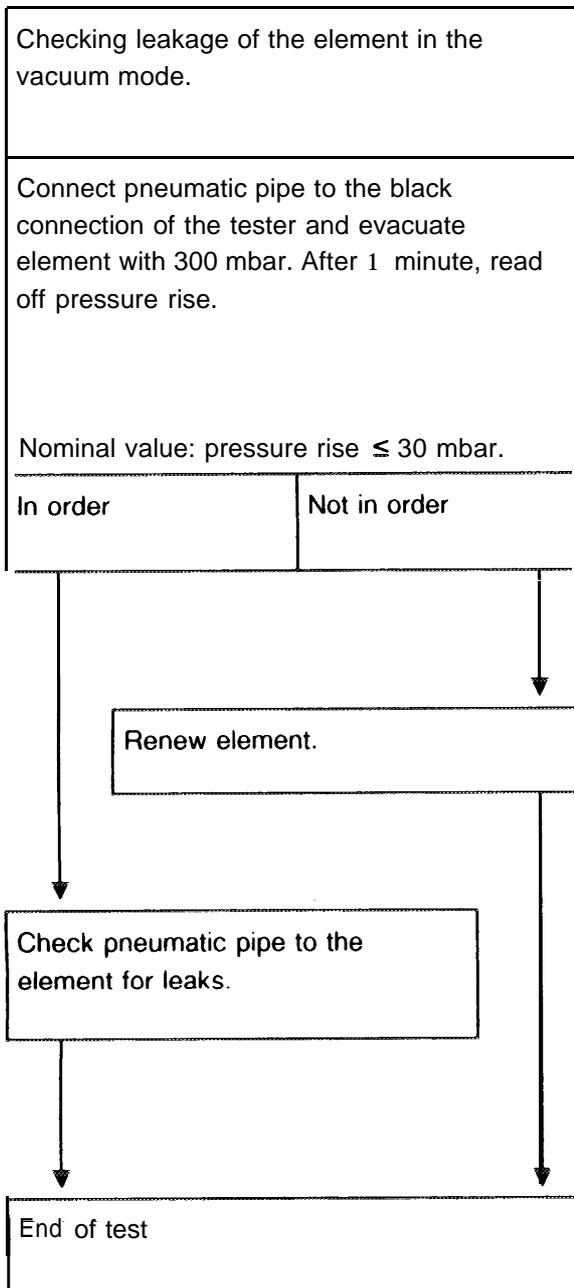


Note

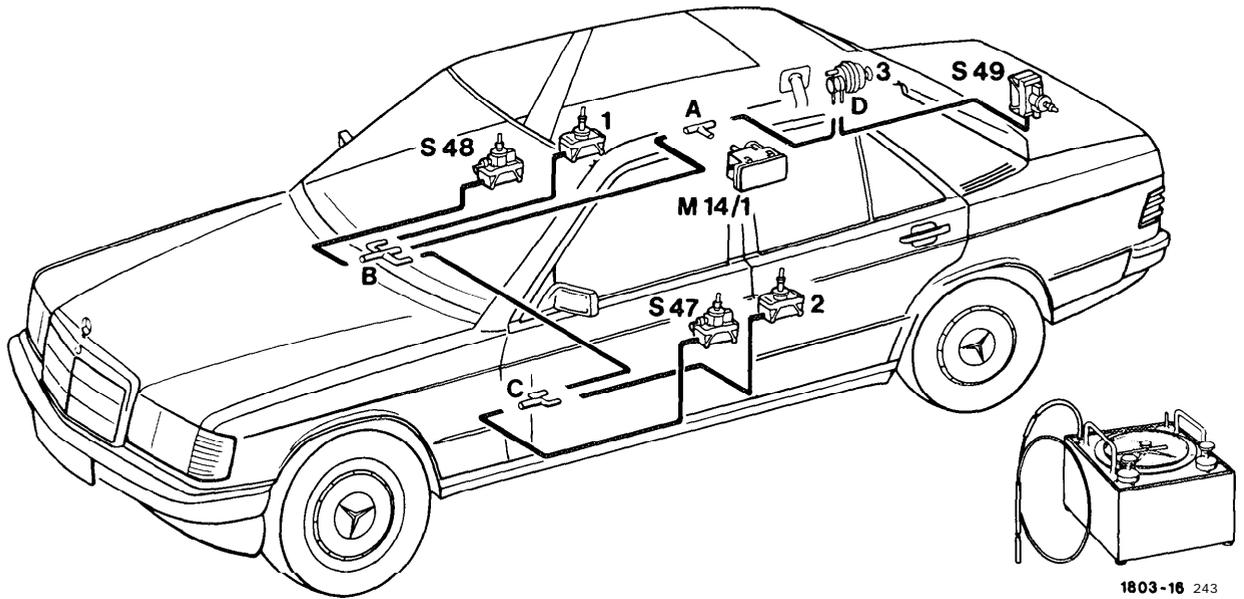
On elements with two pneumatic connections, close one connectron with cap 000 987 11 45.

Test





80-1 20 **Checking central locking system for leaks**



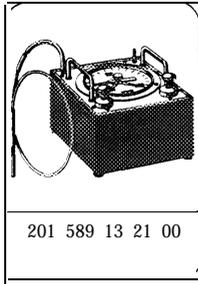
Connection of distribution fitting	Items to be tested	Subsequential test or remedy for leaks
A	<p>Entire system</p> <p>Elements and pneumatic pipes in the passenger compartment.</p> <p>Elements and pneumatic pipes in the trunk.</p>	<p>Check pipes to the passenger compartment or to the trunk for leaks.</p> <p>Check distribution fitting B for leaks.</p> <p>Check distribution fitting or connection fitting D for leaks.</p>

<p>B</p>	<p>Pneumatic pipe to the distribution fitting A.</p> <p>S48 control and working element driver's door right with connection fitting and pneumatic pipe.</p> <p>Rear door right element 1 with connection fitting and pneumatic pipe.</p> <p>Elements and pneumatic pipes in the passenger compartment left.</p>	<p>Repair or renew.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p> <p>Check distribution fitting C for leaks.</p>
<p>C</p>	<p>Pneumatic pipe to the distribution fitting B.</p> <p>S47 control and working element driver's door left with connection fitting and pneumatic pipe.</p> <p>Left rear door element 2 with connection fitting and pneumatic pipe.</p>	<p>Repair or renew.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p>
<p>D</p>	<p>Pneumatic pipe to the distribution fitting A.</p> <p>S49 control and working element trunk lid with pneumatic pipe and connection fitting.</p> <p>Tank flap element 3.</p>	<p>Repair or renew.</p> <p>Check pipe, connection fitting and element individually for leaks. Repair or renew defective parts.</p> <p>Renew.</p>

Data

<p>Permissible leakage rate per minute of the entire system and elements at 600 mbar pressure and at 300 mbar vacuum</p>	<p>mbar</p>	<p>30</p>
<p>Permissible leakage rate per minute of individual pipes at 600 mbar pressure</p>	<p>mbar</p>	<p>0</p>
<p>Connection overlap length of the connection and distribution fittings mm</p>	<p>12 ± 2</p>	

Special tool



Part required for the test

Part No.

Cap

000 987 11 45

Note

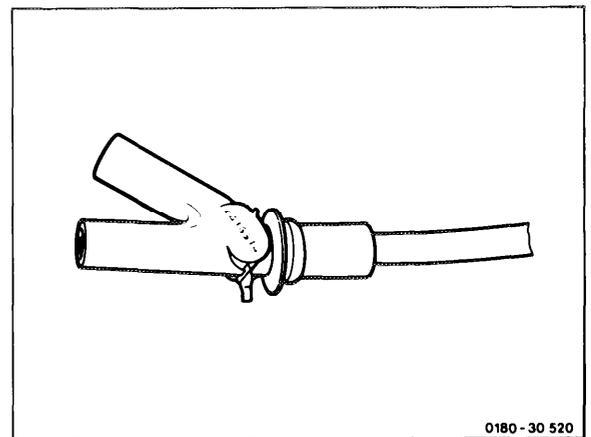
If not all elements work properly although no leaks could be detected, check the pipes, distribution and connection fittings concerned for kinks and free passage.

When conducting the leak test on individual pipes, connect the tester to one end of the pipe and close the other end of the pipe with the cap 000 987 11 **45**.

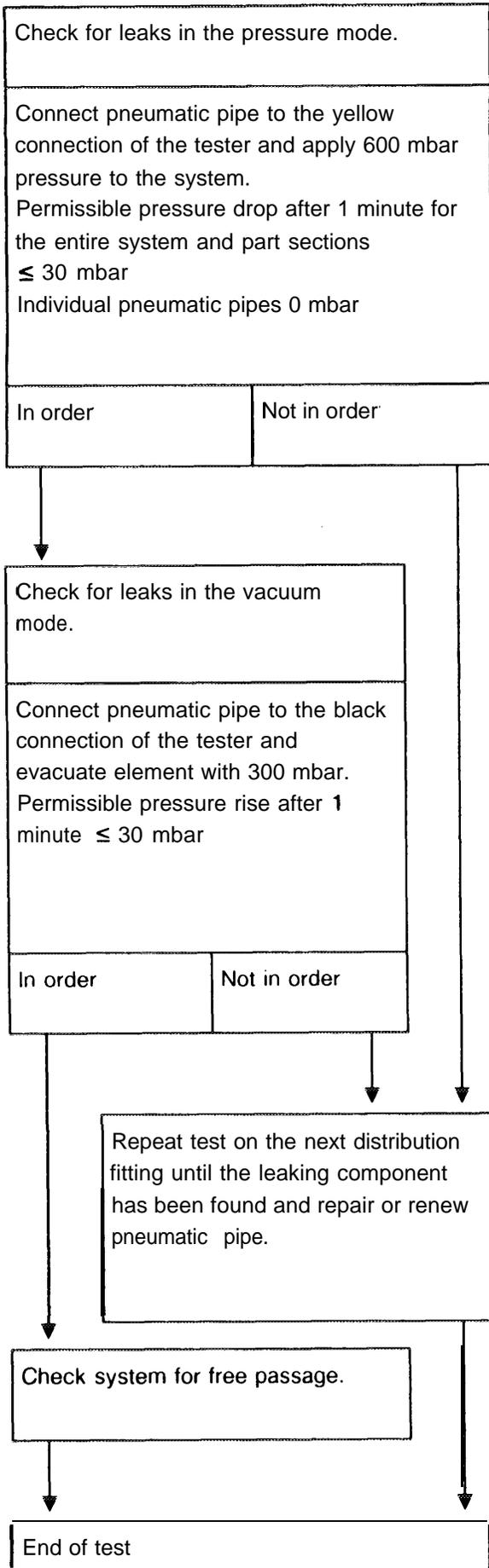
The following test can be applied to all points of the above list.

Test preparation

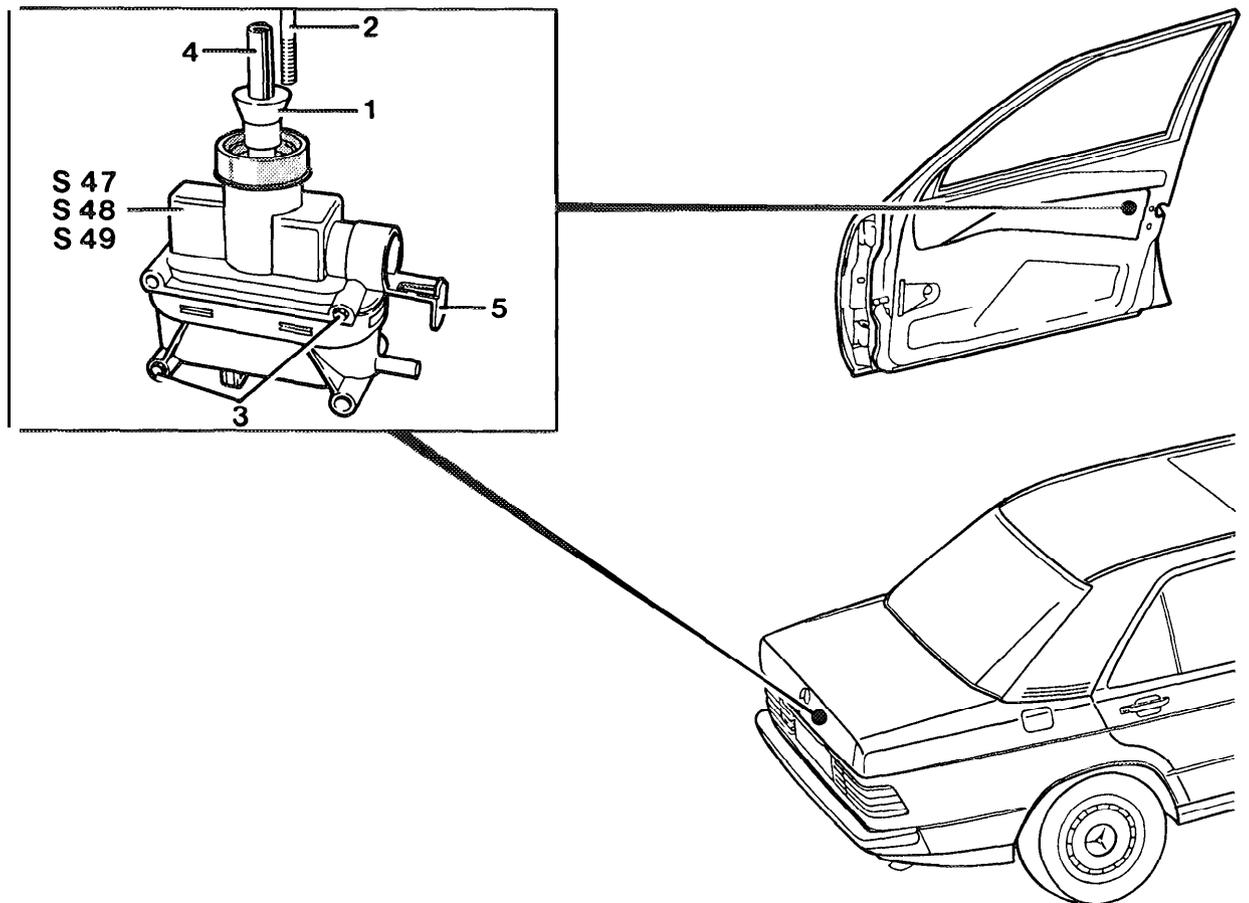
Connect tester for vacuum and pressure systems to distribution fitting or pneumatic pipe.



Test



80-215 Removal and installation of control and working element (S47, S48, S49)

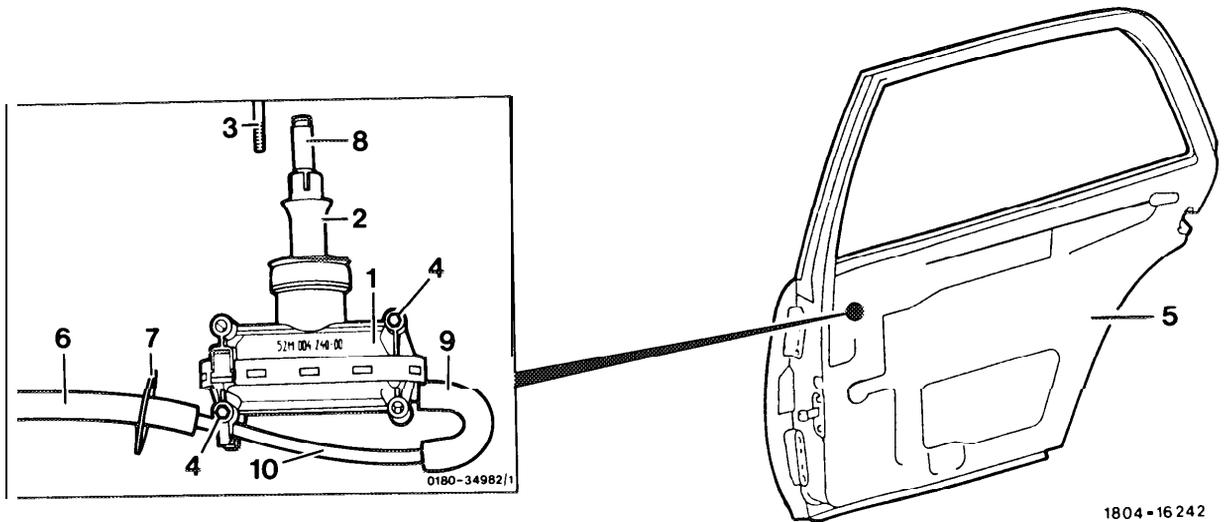


1803-16 270

Door lining	Remove (not with control and working element trunk lid lock).
Sliding sleeve (1)	Push back.
Control rod (2)	Push out.
Screws (3)	Loosen.

Control and working element (S47, S48, S49) . . .	Disconnect.
Tension unloading lever (5)	Push away.
Electrical cable and pneumatic pipe	Pull off.
Electric or pneumatic function of the control and working element (S47, S48, S49)	Check (80-I 12) and (80-I 16).
Bring control and working element (S47, S48, S49) in installation position	Push sliding sleeve (1) fully back and pull control rod attachment (4) out until it engages. On the control and working element for the trunk lid lock (S49), push control rod (2) fully away from the element.
Element in reverse order	Install.

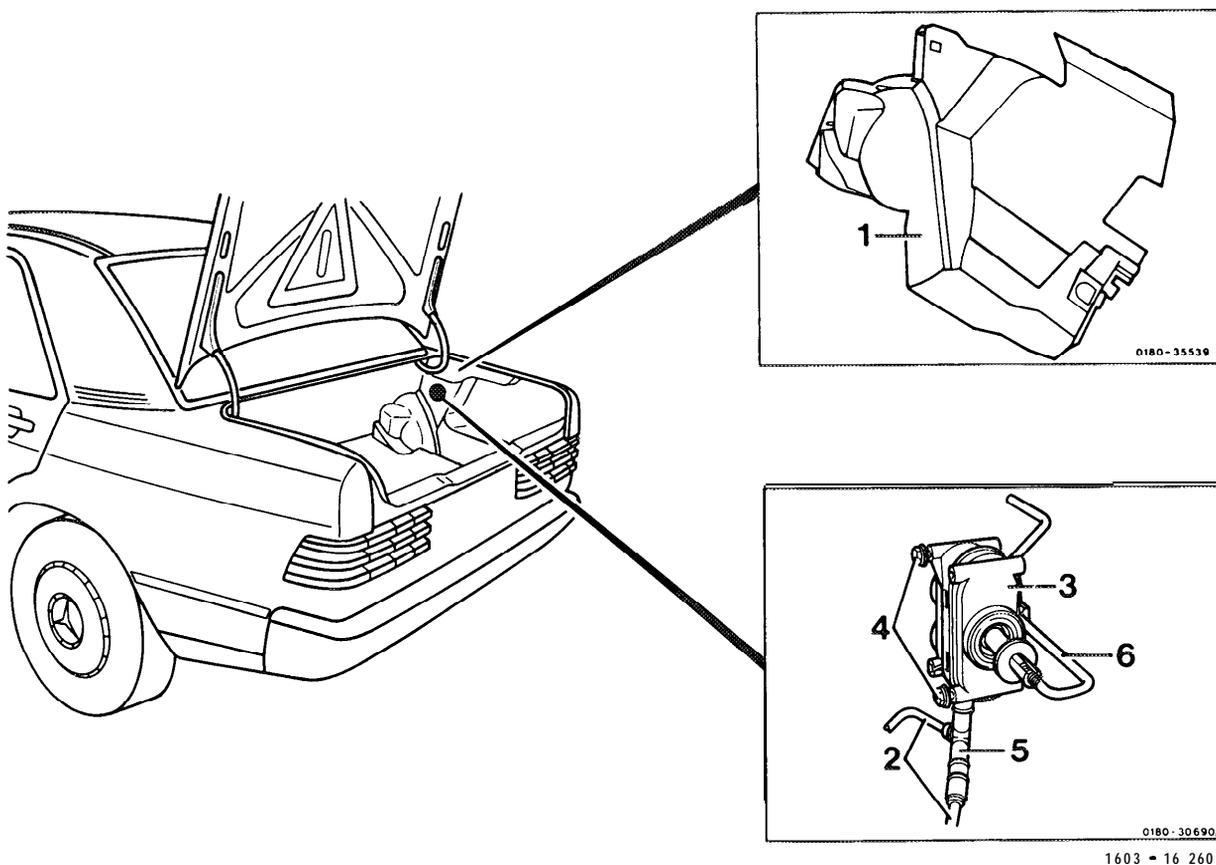
80-220 Removal and installation of fear door element



Door lining (5)	Remove.
Sliding sleeve (2)	Push back.
Control rod (3)	Push out.
Screws (4)	Loosen.
Element (1)	Disconnect.
Pneumatic pipe (6)	Pull off.
Pneumatic pipe (10) and shaped hose (9)	Check for damage.
Pneumatic function of the element (1)	Check (80-I 16).
Element (1)	Bring in installation position. Fully push back sliding sleeve (2) and pull control rod attachment (8) out until it engages.
Element (1)	Install in reverse order.
Rubber washer (7)	Shift up to the opening for the protective hose in the rear door.

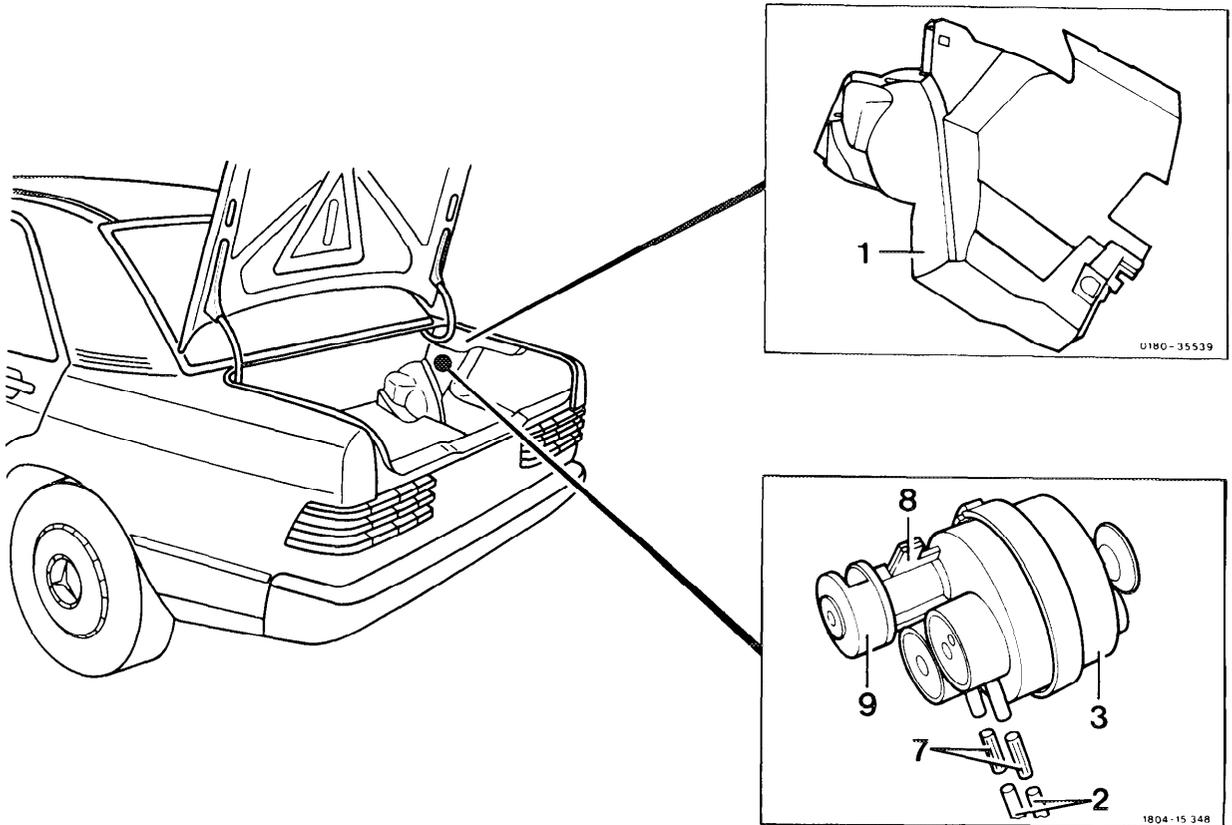
80-230 Removal and installation of tank flap element

A. 1st and 2nd version (up to approx. 03/87)



Lining (1) in the right trunk	Remove, install.
Pneumatic pipes (2)	Pull off, fit.
Screws (4)	Loosen, secure.
Distribution fitting (5)	Check for damage.
Pneumatic function of the element (3)	Check (80-I 16).
Control rod (6)	Adjust, until the tip is at the same level as the control rod guide.

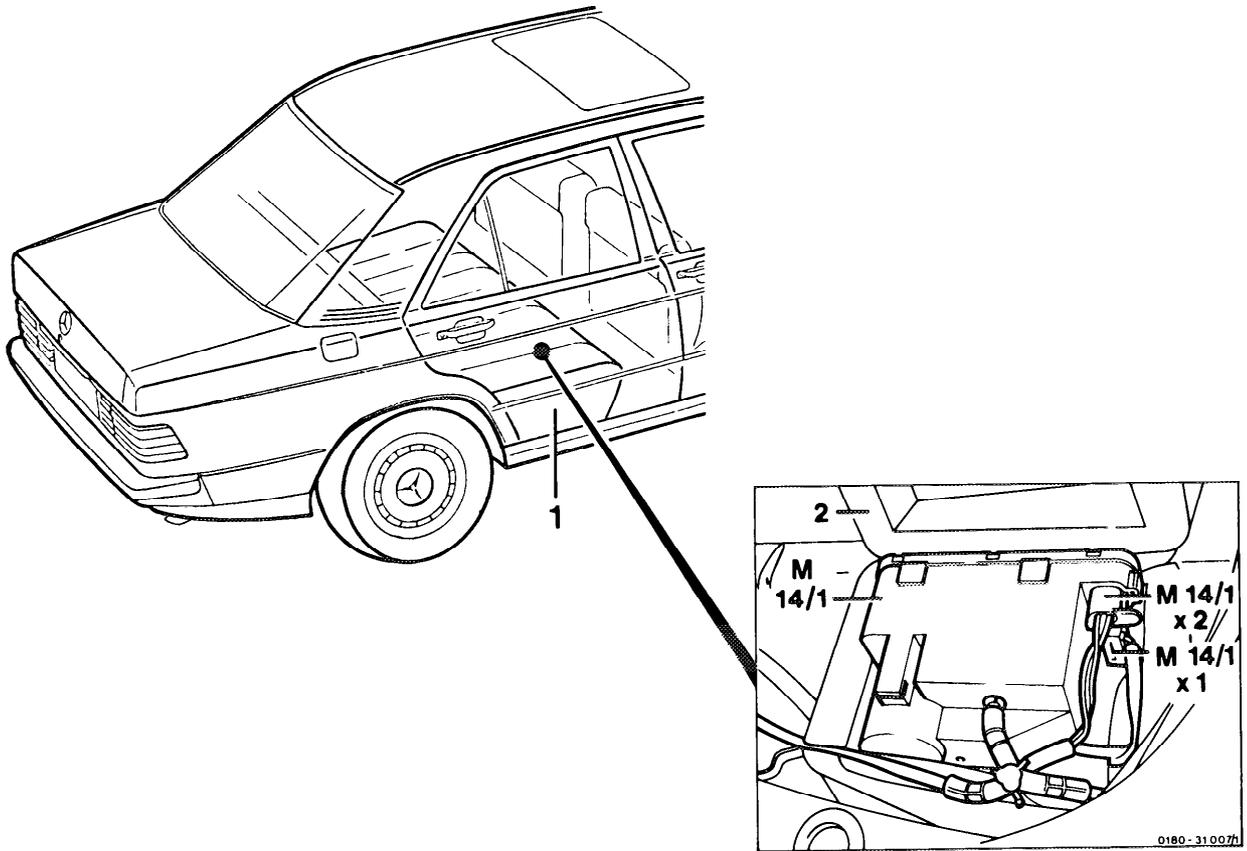
B. 3rd version (as of approx.04/87)



1803 -16 279

Lining (1) in the trunk right	Remove, install.
Pneumatic pipes (2)	Pull off, fit.
Connection fittings (7)	Check for damage.
Attaching strap (8)	Push away for removal.
Pneumatic function of the element (3)	Check (80-l 16).
Element (3)	For installation engage in guide sleeve (9).

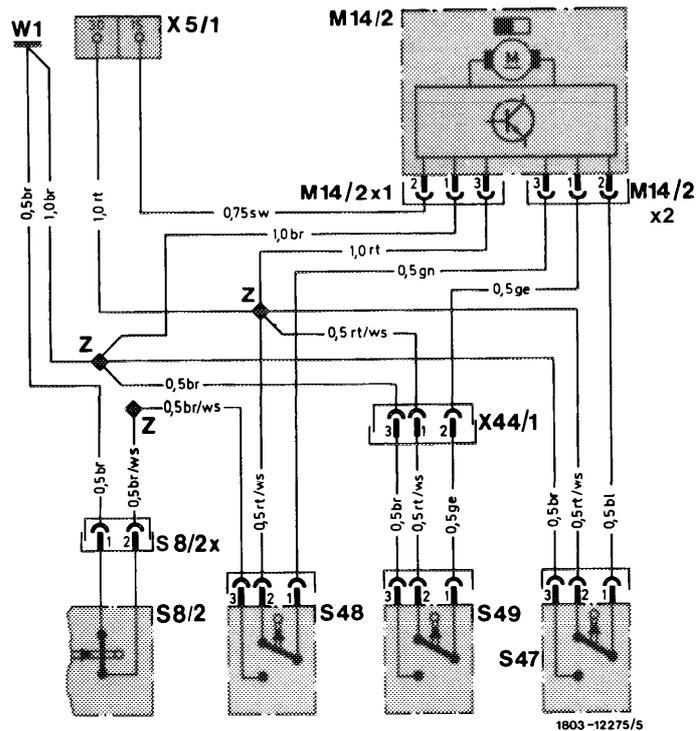
80-270 Removal and installation of supply pump (M14/1)



1804 -16 246

Rear seat cushion (1)	Remove.
Foam material cube (2)	Pull out of trough and open.
Supply pump (M14/1)	Remove.
Pneumatic pipes or electrical cables	Pull off.
Electric function of the central locking system and pneumatic function of the supply pump	Check (80-104 and 80-108).
Supply pump (M14/1)	Install in reverse order.

A. As of 09/84 to approx. 04/85



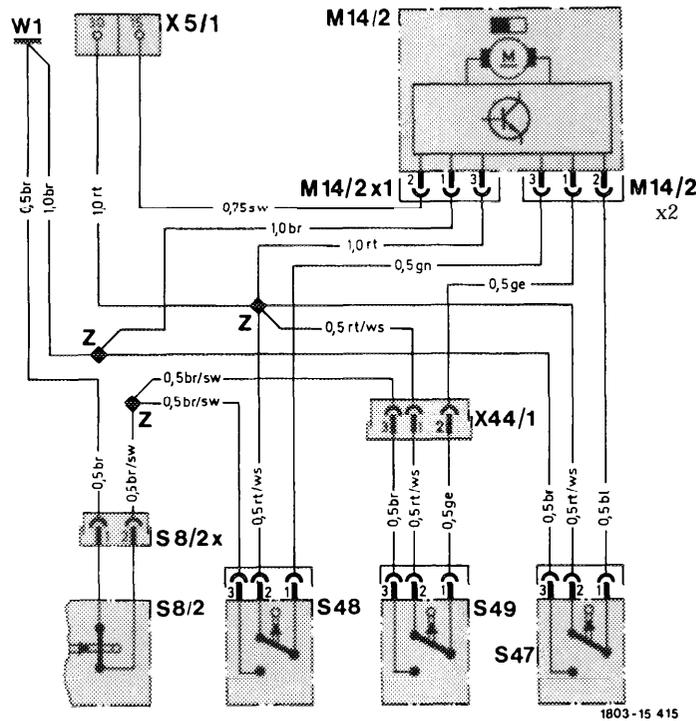
M14/2	Supply pump central locking system with orthopedic front seat back	S8/2x	Connector, warning buzzer contact lighting/central locking system
M14/2x1	Connector, voltage supply, supply pump, central locking system with orthopedic front seat back	s47	Control and working element, driver's door left ¹⁾
M14/2x2	Connector, control cable, supply pump, central locking system with orthopedic front seat back (where applicable, EDW cable harness with intermediate contact)	S48	Control and working element, driver's door right ¹⁾
S8/2	Warning buzzer contact lighting/central locking system	s49	Control and working element, trunk lid lock
		W1	Main ground (behind Instrument cluster)
		x5/1	Terminal block interior
		x44/1	Connector, central locking system/trunk lid lock
		Z	Connector sleeve (solder joint in harness)

¹⁾ On RHD vehicle, cable connection S47 similar to S48 and S48 similar to S47

Note

Black cable from M14/2x1 jack 2 to X5/1 terminal 15 is only installed with orthopedic backrest.

B. As of approx. 05/85 to approx. 03186



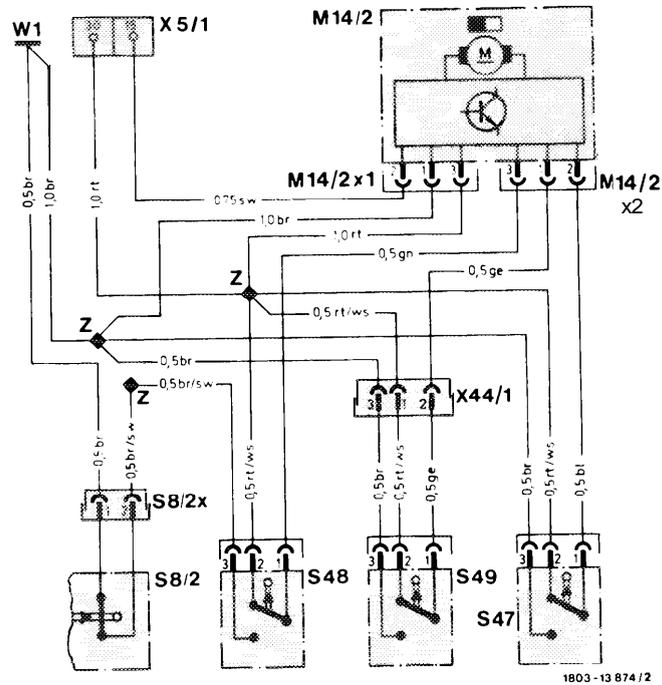
M14/2	Supply pump central locking system with orthopedic front seat back	S8/2x	Connector, warning buzzer contact lighting/central locking system
M14/2x1	Connector, voltage supply, supply pump, central locking system with orthopedic front seat back	s47	Control and working element, driver's door left ¹⁾
M14/2x2	Connector, control cable, supply pump, central locking system with orthopedic front seat back (where applicable, EDW cable harness with Intermediate contact)	S48	Control and working element, driver's door right ¹⁾
S8/2	Warning buzzer contact lighting/central locking system	s49	Control and working element, trunk lid lock
		W1	Main ground (behind instrument cluster)
		X5/1	Terminal block interior terminal 15/30
		x44/1	Connector, central locking system/trunk lid lock
		Z	Connector sleeve (solder joint in harness)

¹⁾ On RHD vehicle, cable connection S47 similar to S48 and S48 similar to S47

Note

Black cable from M14/2x1 jack 2 to X5. 1 terminal 15 is only installed with orthopedic backrest.

C. As of approx. 04/86



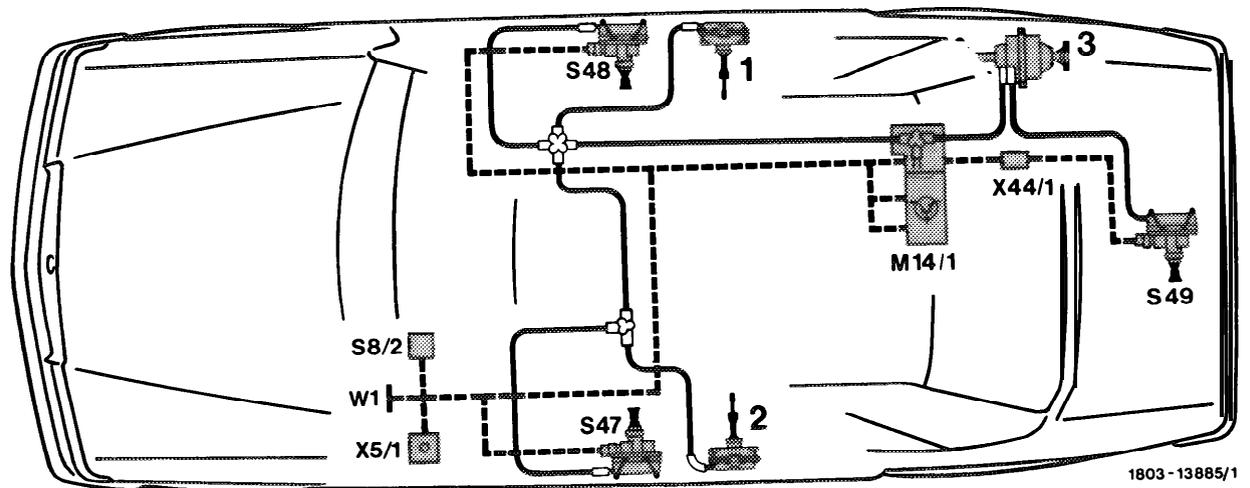
M14/2	Supply pump central locking system with orthopedic front seat back	S8/2x	Connector, warning buzzer contact lighting/central locking system
M14/2x1	Connector, voltage supply, supply pump, central locking system with orthopedic front seat back	s47	Control and working element, driver's door left ¹⁾
M14/2x2	Connector, control cable, supply pump, central locking system with orthopedic front seat back (where applicable, EDW cable harness with Intermediate contact)	S48	Control and working element, driver's door right ¹⁾
S8/2	Warning buzzer contact lighting/central locking system	s49	Control and working element trunk lid lock
		W1	Main ground (behind instrument cluster)
		X5/1	Terminal block interior terminal 15/30
		x44/1	Connector, central locking system/trunk lid lock
		Z	Connector sleeve (solder joint in harness)

¹⁾ On RHD vehicle, cable connection S47 similar to S48 and S48 similar to S47

Note

Black cable from M14/2x1 jack 2 to X5/1 terminal 15 is only installed with orthopedic backrest.

A. LHD vehicle

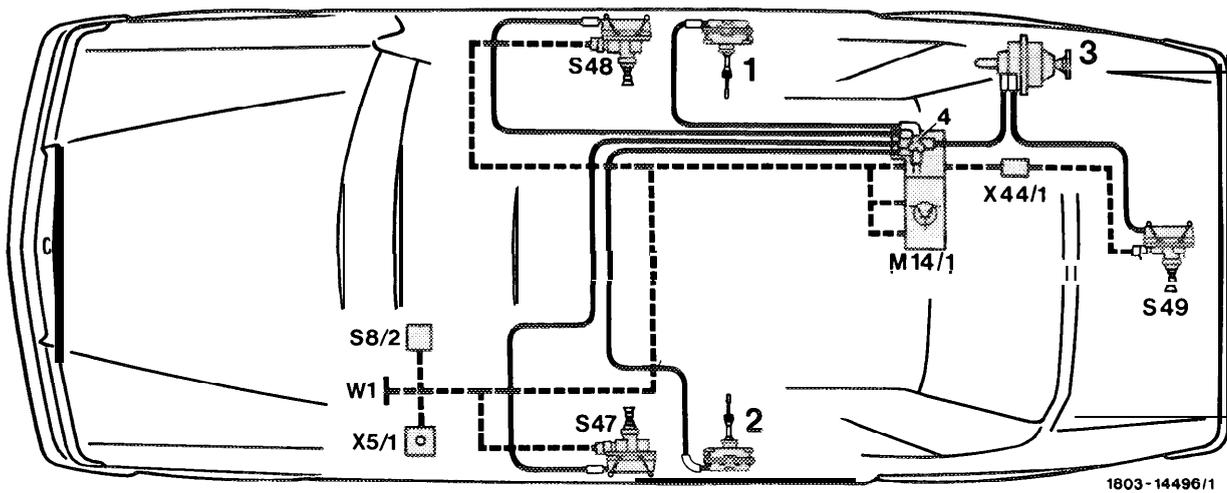


1803-13885/1

1	Element, rear door right	s49	Control and working element, trunk lid lock
2	Element, rear door left	W1	Main ground (behind instrument cluster)
3	Element, tank flap	x5/1	Connector, interior, terminal 15/30
M14/1	Supply pump central locking system	x44/1	Connector, central locking system/trunk lid lock
S8/2	Warning buzzer contact lighting/central locking system	---	Electrical cable
s47	Control and working element, driver's door left	—	Pneumatic pipe
S48	Control and working element, driver's door right		

C. "Spider cable harness"

Production breakpoint: Vehicle ident end No.
as of up to
A 326859 A 329516



- | | | | |
|-------|--|-------|--|
| 1 | Element, rear door nght | S48 | Control and working element, driver's door right |
| 2 | Element, rear door left | s49 | Control and working element, trunk lid lock |
| 3 | Element, tank flap | W1 | Main ground (behind instrument cluster) |
| 4 | 6-fold distribution fitting | X5/1 | Connector, interior |
| M14/1 | Supply pump central locking system | x44/1 | Connector, central locking system/trunk lid lock |
| S8/2 | Warning buzzer contact lighting/central locking system | ----- | Electrical cable |
| s47 | Control and working element, driver's door left | ————— | Pneumatic pipe |