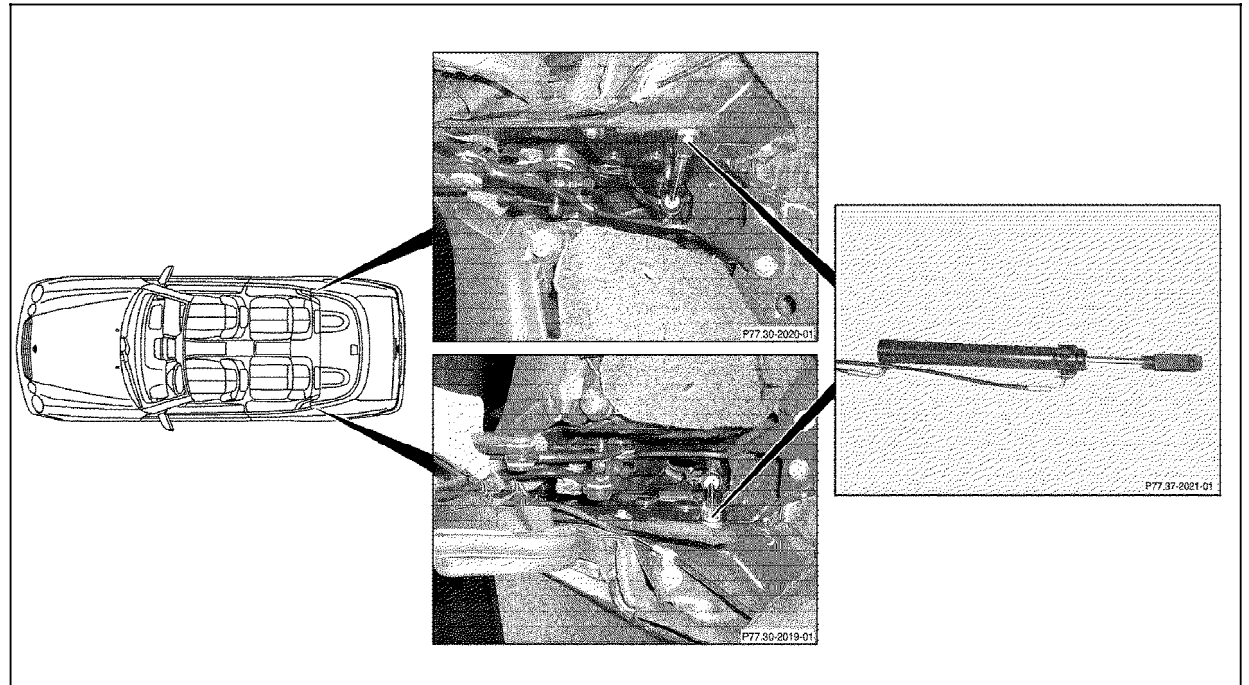


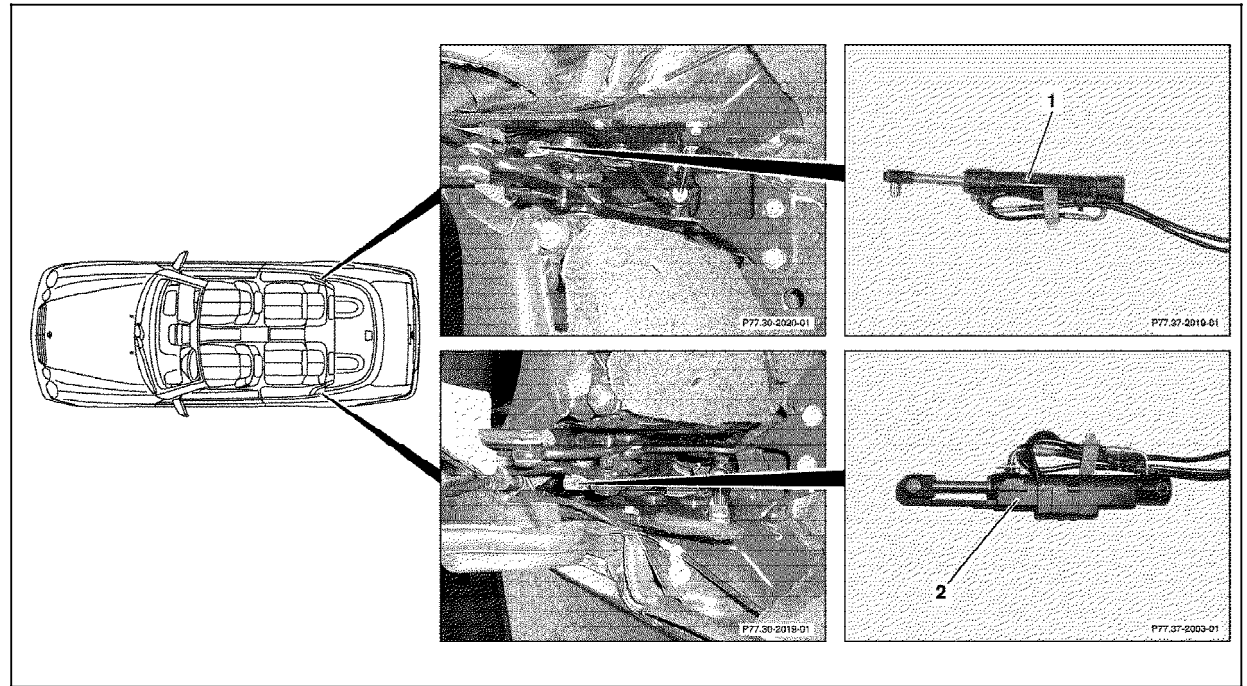
Hydraulic Test Program – Component Locations



Soft top hydraulic cylinders (opening/closing)

P77.37-2022-09

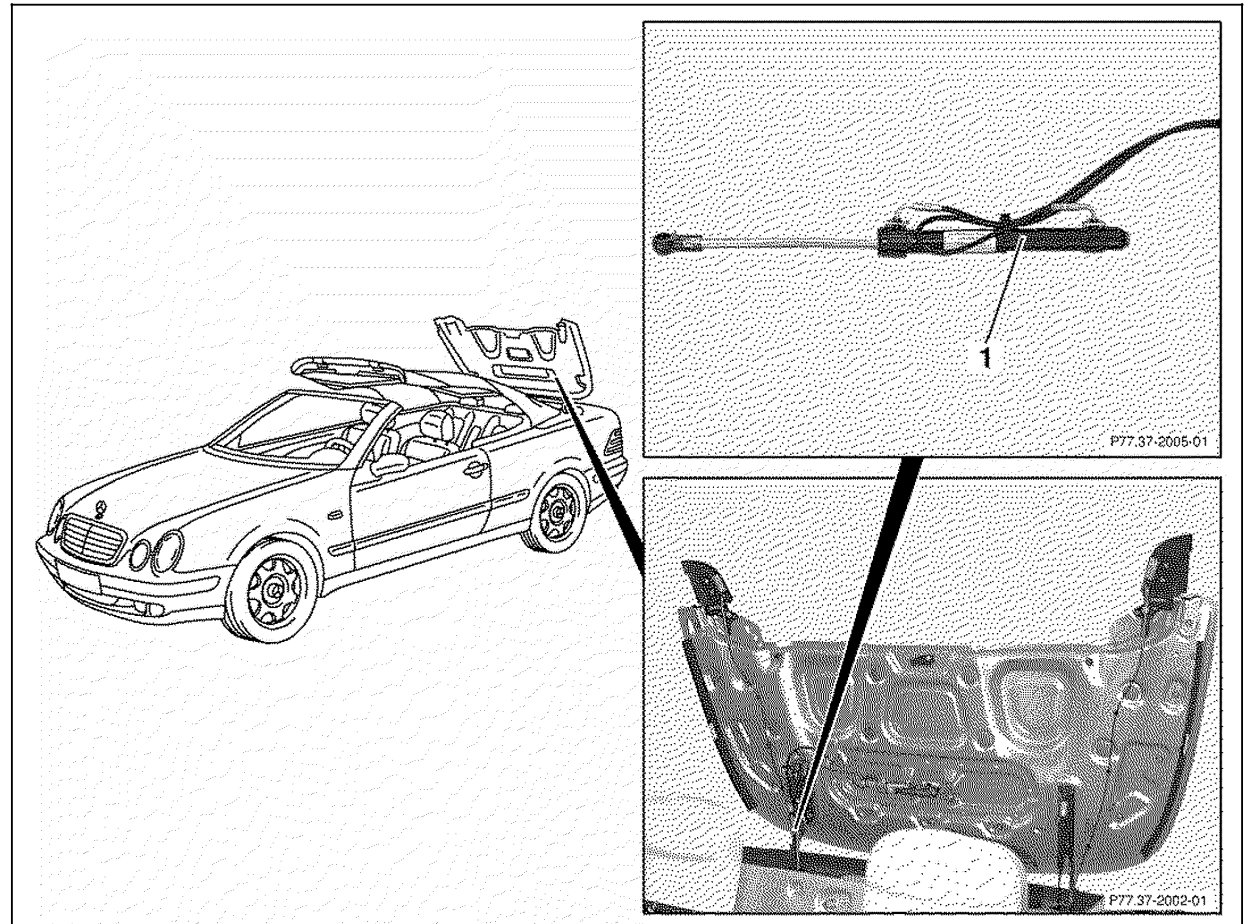
## Hydraulic Test Program – Component Locations



- 1 Right soft top bow hydraulic cylinder (raising/lowering)
- 2 Left soft top bow hydraulic cylinder (setting up/lowering)

P77.37-2020-09

Hydraulic Test Program – Component Locations



1 Soft top compartment cover hydraulic cylinder (opening/closing)

P77.37-2016-06

## Hydraulic Test Program –Test

 **WARNING: Risk of Personal Injury!**

### MOVING COMPONENTS

When working on components which are moved by hand, by electric motor, by hydraulic or pneumatic means via a connecting mechanism, severe injury may be sustained as a result of severing, trapping or crushing of limbs.

#### Safety precautions for working with moving components:

- Keep the danger zone under surveillance.
- When moving components, protect the range of mechanical movement against interference.
- Do not reach into the mechanism of a component while energizing electric motors via testers (HHT) or directly via terminal 30.  
Make sure that test cables are of sufficient length.

During work in the area of the roll bar, there is a risk of serious injury should the roll bar suddenly deploy.

The roll-over sensors are integrated into the roll bar control module (power soft top) (N52), the roll bar may be activated inadvertently during diagnosis or maintenance work on N52.

Moreover, the roll bar may still be triggered up to 1 hour after the ignition has been switched off. It is therefore not sufficient just to switch off the ignition.

#### Precautions/rules for handling roll bars:

- Always monitor the danger area.
- Always raise the roll bar before carrying out any work in its vicinity.
- Should it not be possible to raise the roll bar due to a malfunction, the vehicle's battery (G1) must be disconnected.

- Ensure that parts of the body are kept a safe distance from the area in which the roll bar's mechanism moves.

### HYDRAULIC SYSTEMS

Serious injuries can be caused to the skin or eyes when loosening hydraulic lines if the system is not previously depressurized due to the very high pressures (above 200 bar). Damage to the skin may be caused if unprotected skin comes into contact with hydraulic fluid, particularly central hydraulic fluid (this is especially harmful to health).

Anyone who swallows hydraulic fluid can expect to suffer symptoms of poisoning including headaches, dizziness, stomach ache, vomiting, diarrhea, cramps and unconsciousness

#### Safety measures/operating instructions for working with hydraulic systems:

- Before starting work on hydraulic systems they should be depressurized and the system must be emptied if necessary.
- Do not pour hydraulic fluid into drinking containers.
- Ensure adequate ventilation, particularly in the case of central hydraulic fluid.
- Ensure only authorized persons have access to hydraulic fluid.
- Seal disconnected lines and hoses and connections on the subassemblies immediately with blind plugs.
- Wear **safety gloves, protective clothing and safety glasses**.  
If it is not possible to wear safety gloves, the following points are to be observed:  
Only allow hydraulic fluid to come into contact with the skin for as short a time as possible, wash fluid off skin with soap and water.  
Change wet clothing as quickly as possible.

### Hydraulic Test Program –Test

#### Notes for Hydraulic Tests:

#### Actuation using Hand Held Tester (HHT)

For actuation using the HHT, the contact of the power soft top test connector (X11/12) must be routed to ground.

It is absolutely essential to remove the connection when the actuations are completed.

#### Note:

X11/12 is located in the area of the data link connector (DTC readout) (X11/4).

#### Visual inspection

To ensure that satisfactory visual inspection can be carried out in the event of oil loss in the hydraulic system, the appropriate trim parts and rear seat system are to be removed.

#### Bleeding soft top/roll bar hydraulic system

The hydraulic system bleeds itself automatically after the soft top is operated 2-3 times.

#### Reducing pressure in the soft top/roll bar hydraulic system

The pressure in the soft top/roll bar hydraulic system may still be present after taking a pressure measurement. There are 3 alternatives for reducing pressure before unscrewing the test line:

- Close the soft top (manually if necessary) but do not lock.  
Switch the ignition on and off again twice in quick succession.

- Connect HHT then connect contact of power soft top test connector (X11/12) to vehicle ground.

Ignition: **ON**

Perform actuation, "pressure reducing".

Disconnect contact at power soft top test connector (X11/12) again.

- Ignition: **OFF**

Disconnect relay (A7/5k1) on the roll bar (RB) hydraulic unit (power soft top) (A7/5) from the relay base.

Ignition: **ON**

Operate the RB switch (manual operation) (S83) or power soft top switch (S84) briefly.

#### Note:

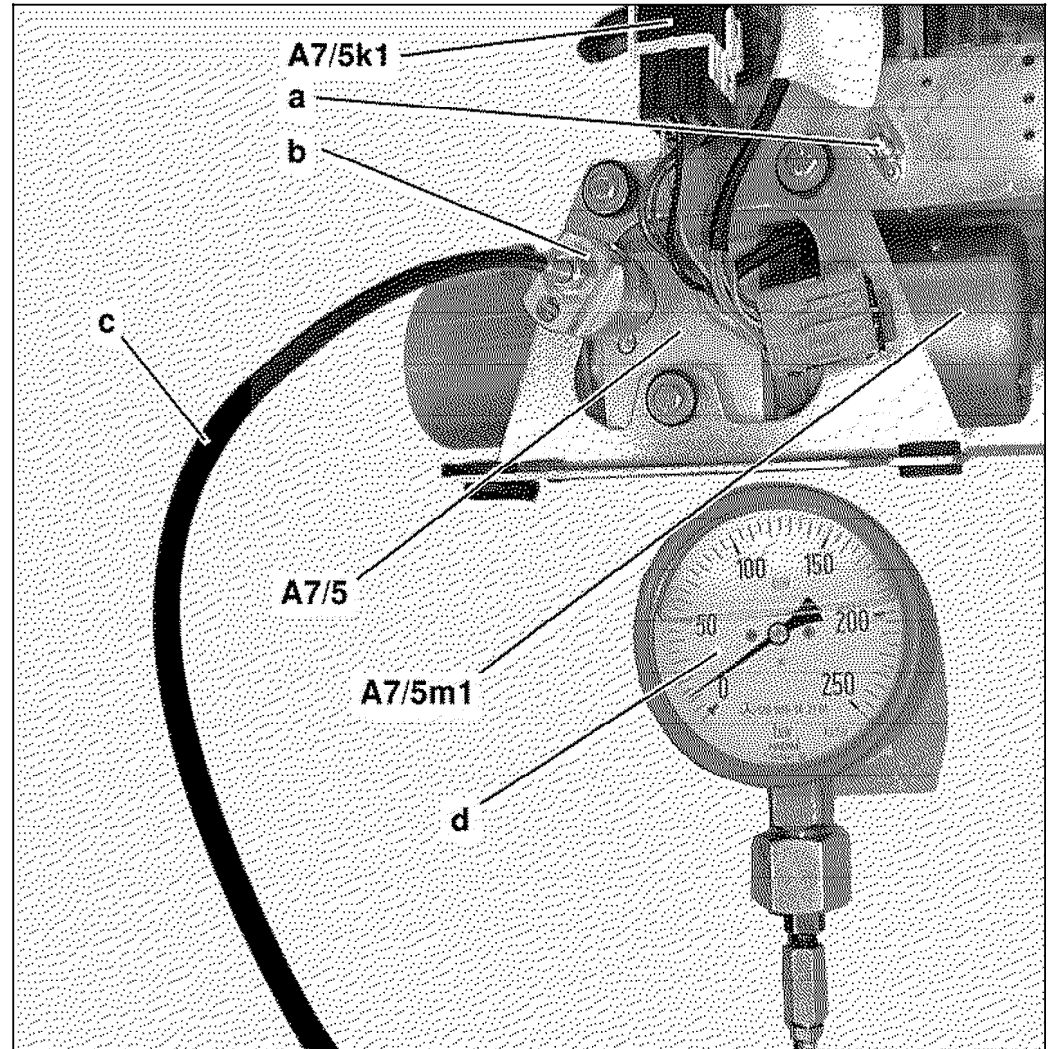
The position of the soft top is of no significance when reducing pressure using the HHT or switches S83 and S84 as mentioned above.

## Hydraulic Test Program – Test

Connection of pressure gauge on the roll bar (RB) hydraulic unit (power soft top) (A7/5).

### ⚠ CAUTION!


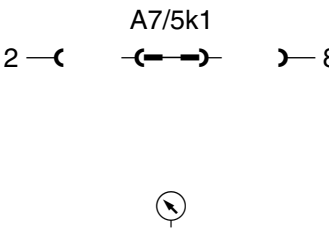
Route test line "c" carefully out of the trunk and close the trunk lid carefully so that the test line is not pinched.




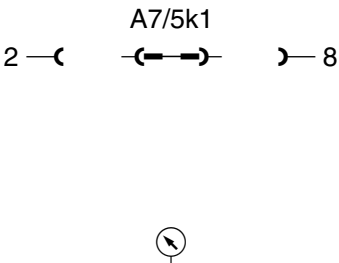
- A7/5 Rollover bar (RB)/soft top operation hydraulic unit
- A7/5k1 Hydraulic unit relay
- A7/5m1 Hydraulic unit motor
- a Valve screw for emergency operation of soft top
- b Non-return valve
- c Test line
- d Tester (pressure gauge)

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Electrical Test Program – Test


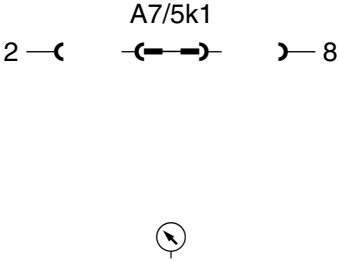
⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		Checking system pressure		Ignition: <b>OFF</b> Soft top: CLOSED Roll bar: EXTENDED Connector on roll bar (RB) control module (power soft top) (N52) disconnected. Hydraulic unit relay (A7/5k1) disconnected from base. Connect pressure gauge: 33/6  Set fuse cable (124 589 37 63 00) with at least 25 A at relay base  Read pressure.	Pump runs       approx. 150 bar	<ul style="list-style-type: none"> <li>External leaks: Perform visual inspection</li> </ul> ⇒ 1.1

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.1		Internal leaks at hydraulic cylinder, unlock/lock soft top bow		<p>Roll bar: EXTENDED Pressure gauge: CONNECTED Reduce pressure, refer to: 33/5 Soft top bow and soft top compartment cover: RAISED Disconnect hydraulic line 44 (return) on hydraulic cylinder, unlock/lock soft top bow and seal with closing plugs (special tool no. 129 589 00 91 01).</p> <p>Set fuse cable (special tool no. 124 589 37 63 00) with at least 25 A at relay base</p> <p>Read pressure.</p>	<p>Pump runs</p> <p>approx. 150 bar</p>	<p>Value OK:</p> <ul style="list-style-type: none"> <li>Internal leaks at hydraulic cylinder, unlock/lock soft top bow.</li> </ul> <p>Value not OK: ⇒ 1.2</p>



Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.2		Internal leaks at hydraulic cylinder, unlock/lock soft top compartment cover		<p>Roll bar: EXTENDED Pressure gauge: CONNECTED Reduce pressure, refer to: 33/5 Soft top bow and soft top compartment cover: RAISED Disconnect hydraulic line 32 (return) on hydraulic cylinder, unlock/lock soft top compartment cover and seal with closing plugs 129 589 00 91 01.</p> <p>Set fuse cable (special tool no. 124 589 37 63 00) with at least 25 A at relay base.</p> <p>Read pressure.</p>	<p>Pump runs</p> <p>approx. 150 bar</p>	<p>Value OK:</p> <ul style="list-style-type: none"> <li>Internal leaks at hydraulic cylinder, unlock/lock soft top compartment cover.</li> </ul> <p>Value not OK:</p> <ul style="list-style-type: none"> <li>Roll bar (RB) hydraulic unit (power soft top) (A7/5).</li> </ul>