# 11.4 Retractable Hardtop (RH)

## **Contents**

#### 11.4 Model 170

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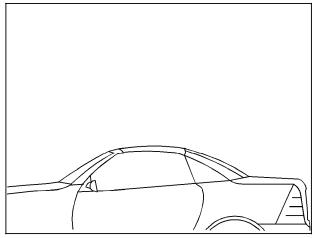
#### Retractable hardtop opening sequence

Initial stage: Retractable hardtop closed.

Each figure shows sequence step with each limit switch in the end postion, along with actuation of hydraulic actuators and window motors, that must be completed first before the next sequence step can be accomplished.



Before beginning operation of the retractable hardtop, the luggage cover in the trunk must be extended and engaged, and trunk lid closed.



P77.39-0232-01 Figure 1

Initial stage: Retractable hardtop closed.

S69/1 Retractable hardtop closed limit switch (right pin) S69/2 Retractable hardtop locked limit switch (right

rotary latch)

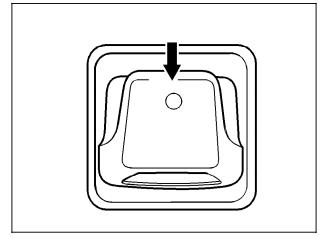
S69/3 Retractable hardtop locked limit switch (left rotary

latch)

S69/7 Trunk lid closed/locked left limit switch S69/8 Trunk lid closed/locked right limit switch

Retractable luggage cover engaged limit switch S69/10 S69/12 Trunk lock/trunk illumination rotary latch selector

switch



P77.39-0231-01 Figure 2

S84 Retractable hardtop switch

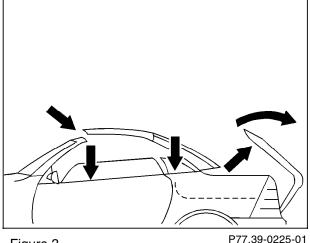


Figure 3

rigule 3	
A7/5k1	Hydraulic unit relay
A7/5y1	Retractable hardtop solenoid valve
A7/5y2	Trunk lid solenoid valve
M10/3	Left front power window motor (voltage supply)
M10/4	Right front power window motor (voltage supply)
M10/5	Left rear power window motor
M10/6	Right rear power window motor
S69/1	Retractable hardtop closed limit switch (right pin)
S69/9	Trunk lid open limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector
	switch

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#### Retractable hardtop opening sequence

Each figure shows sequence step with each limit switch in the end postion, along with actuation of hydraulic actuators and window motors, that must be completed first before the next sequence step can be accomplished.

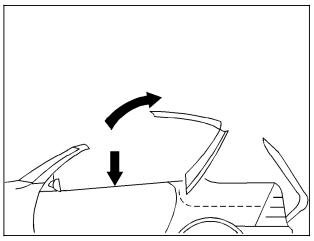


Figure 4	P77.39-0226-0
A7/5k1	Hydraulic unit relay
A7/5y1	Retractable hardtop solenoid valve
A7/5y2	Trunk lid solenoid valve
M10/3	Left front power window motor (voltage supply)
M10/4	Right front power window motor (voltage supply)
S69/9	Trunk lid open limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/11	Retractable hardtop open/stored limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector
	switch

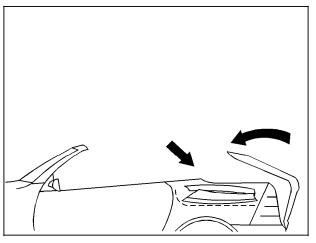


Figure 5	P77.39-0227-01
A7/5k1	Hydraulic unit relay
S69/2	Retractable hardtop locked limit switch (right rotary latch)
S69/3	Retractable hardtop locked limit switch (left rotary latch)
S69/7	Trunk lid closed/locked left limit switch
S69/8	Trunk lid closed/locked right limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/11	Retractable hardtop open/stored limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector

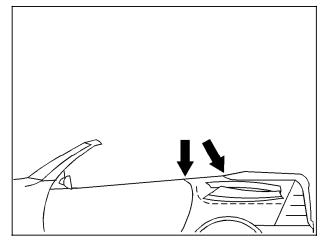


Figure 6	P77.39-0228-01
A7/5k1	Hydraulic unit relay
M10/5	Left rear power window motor
M10/6	Right rear power window motor
S69/2	Retractable hardtop locked limit switch (right rotary latch)
S69/3	Retractable hardtop locked limit switch (left rotary latch)
S69/7	Trunk lid closed/locked left limit switch
S69/8	Trunk lid closed/locked right limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/11	Retractable hardtop open/stored limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector switch

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#### Retractable hardtop opening sequence

Each figure shows sequence step with each limit switch in the end postion, along with actuation of hydraulic actuators and window motors, that must be completed first before the next sequence step can be accomplished.

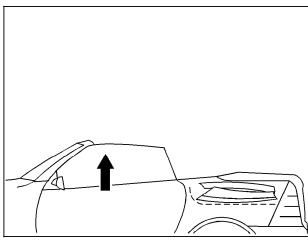


Figure 7 P77.39-0229-01

M10/3 Left front power window motor (voltage supply)M10/4 Right front power window motor (voltage supply)

#### Retractable hardtop closing sequence

Initial stage: Retractable Hardtop open (stored).

Each figure shows sequence step with each limit switch in the end postion, along with actuation of hydraulic actuators and window motors, that must be completed first before the next sequence step can be accomplished.



Before beginning operation of the retractable hardtop, the luggage cover in the trunk must be extended and engaged, and trunk lid closed.

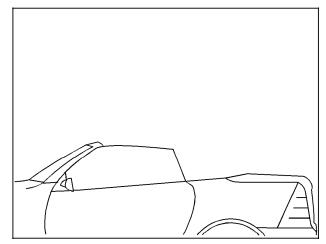


Figure 1 P77.39-0218-01

Initial stage: Retractable Hardtop open (stored).

S69/2 Retractable hardtop locked limit switch (right

rotary latch)

S69/3 Retractable hardtop locked limit switch (left rotary

latch)

S69/7 Trunk lid closed/locked left limit switch S69/8 Trunk lid closed/locked right limit switch

S69/10 Retractable luggage cover engaged limit switch S69/12 Trunk lock/trunk illumination rotary latch selector

switch

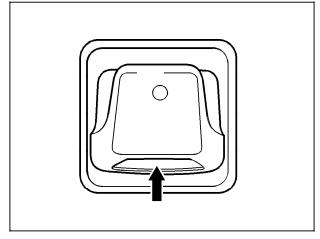


Figure 2 P77.39-0230-01

S84 Retractable hardtop switch

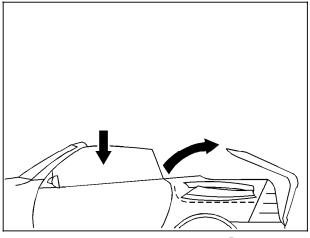


Figure 3 P77.39-0219-01

A7/5k1	Hydraulic unit relay
A7/5y2	Trunk lid solenoid valve
M10/3	Left front power window motor (voltage supply)
M10/4	Right front power window motor (voltage supply)
M10/5	Left rear power window motor
M10/6	Right rear power window motor
S69/9	Trunk lid open limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/11	Retractable hardtop open/stored limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector
	switch

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#### Retractable hardtop closing sequence

Each figure shows sequence step with each limit switch in the end postion, along with actuation of hydraulic actuators and window motors, that must be completed first before the next sequence step can be accomplished.

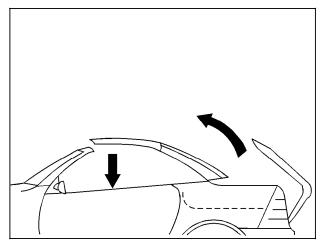


Figure 4	P77.39-0220-0
A7/5k1	Hydraulic unit relay
A7/5y1	Retractable hardtop solenoid valve
A7/5y2	Trunk lid solenoid valve
M10/3	Left front power window motor (voltage supply)
M10/4	Right front power window motor (voltage supply)
S69/1	Retractable hardtop closed limit switch (right pin)
S69/9	Trunk lid open limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector
	switch

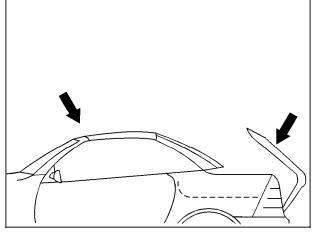


Figure 5	P77.39-0221-01
A7/5k1	Hydraulic unit relay
A7/5y1	Retractable hardtop solenoid valve
S69/1	Retractable hardtop closed limit switch (right pin)
S69/2	Retractable hardtop locked limit switch (right
	rotary latch)
S69/3	Retractable hardtop locked limit switch (left rotary
	latch)
S69/7	Trunk lid closed/locked left limit switch
S69/8	Trunk lid closed/locked right limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector
	switch

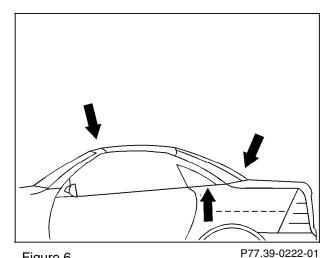


Figure 6	
A7/5k1	Hydraulic unit relay
A7/5y1	Retractable hardtop solenoid valve
M10/5	Left rear power window motor
M10/6	Right rear power window motor
S69/1	Retractable hardtop closed limit switch (right pin)
S69/2	Retractable hardtop locked limit switch (right rotary latch)
S69/3	Retractable hardtop locked limit switch (left rotary latch)
S69/7	Trunk lid closed/locked left limit switch
S69/8	Trunk lid closed/locked right limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector switch

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#### **Diagnosis – Function Test**

#### Retractable hardtop closing sequence

Each figure shows sequence step with each limit switch in the end postion, along with actuation of hydraulic actuators and window motors, that must be completed first before the next sequence step can be accomplished.

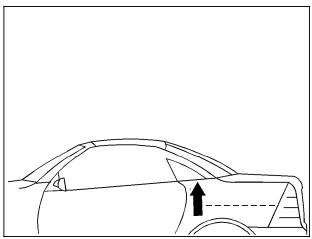


Figure 7

M10/5
M10/6
M10/6
S69/10
S69/12

P77.39-0223-01

Retract power window motor
Right rear power window motor
Retractable luggage cover engaged limit switch
Trunk lock/trunk illumination rotary latch selector switch

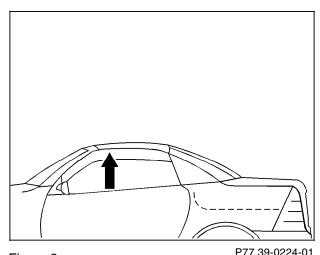


Figure 8	F77.39-0224-
M10/3	Left front power window motor (voltage supply)
M10/4	Right front power window motor (voltage supply)
S69/10	Retractable luggage cover engaged limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector
	switch

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy 1) 2)
⇒ 1.0 Power windows <sup>2)</sup>	Ignition: <b>ON</b> (position 1)		16
Open side windows	Press <b>rear</b> of the window switch (1 detent)	Side windows open, as long as switch is depressed	16
Open side windows - express down (automatic one-touch function)	Press <b>rear</b> of the window switch (past 1 detent)	Window opens automatically without depressing the switch	16
Close side windows	Press <b>front</b> of the window switch	Window closes, as long as switch is depressed	16
Front side windows open with retractable hardtop switch tip function	Press retractable hardtop locked  Press retractable hardtop switch twice within 0.5 seconds to the rear and hold	Front side windows open, switch must be held in the open (pressed to the rear) position	16
Front side windows close with retractable hardtop switch tip function	Retractable hardtop locked Press retractable hardtop switch twice within 0.5 seconds to the front and hold	Front side windows close, switch must be held in close (to the front) position	16

<sup>1)</sup> Observe Preparation for Test, see 22.

<sup>2)</sup> The luggage cover in the luggage compartment must engaged and the trunk lid closed, prior to starting the Function Test.

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy 1)
⇒ 2.0 Retractable hardtop switch indicator lamp	Ignition: <b>ON</b>	Indicator lamp illuminates	16
⇒ 3.0 Retractable hardtop opens by pressing the switch	Ignition: <b>ON</b> Press retractable hardtop switch to the " <b>open</b> " (toward back) position	Side windows front and rear open Retractable hardtop unlocks Trunk lid opens up Retractable hardtop opens Trunk lid closes and locks up Front side windows close	16
⇒ 4.0 Retractable hardtop closes by pressing the switch	Ignition: <b>ON</b> Press retractable hardtop switch to the "close" (toward front) position	Side windows front open Trunk lid opens up Retractable hardtop closes Trunk lid closes and locks Retractable hardtop locks Front and rear side windows close	14 Complaint No. 13
⇒ 5.0 Gong in instrument cluster	Retractable hardtop unlocked and vehicle speed is more than 3 mph (5 km/h)	Gong in instrument cluster sounds	16

<sup>1)</sup> Observe Preparation for Test, see 22.

Preliminary work:	
Diagnosis - Function Test	 1

#### **Prerequisite for reading DTC memory**

- 1. Fuses O. K.
- 2. Battery voltage > 11 V.
- 3. Connect HHT according to connection diagram, see section 0.



Erasing Retractable Hardtop (RH) DTC will also automatically erase Combination Control Module (CCM) DTC from memory.

#### **Note regarding DTCs**

Current diagnostic trouble codes are highlighted in black on the display. Additional detailed fault information based on fault type is displayed with nearly all diagnostic codes (DTC's) such as:

- $> \Omega$  resistance too great
- $< \Omega$  resistance too low
- Γ1+ short circuit to positive (POS)
- ΓΊ– short circuit to ground (GND)
- -//- open circuit

DTC	Possible cause	Test step/Remedy 1)
B1000	Combination control module (N10-3) defective	Replace (N10-3).
81010	Low voltage terminal 30E < 10V	23 ⇒ 1.0
BIOH	High voltage terminal 30E > 15V	23 ⇒ 1.0
81016	Faulty ground terminal 31A (front power windows and interior lights inoperable)	23 ⇒ 2.0
ВЮГТ	Faulty ground terminal 31B (rear power windows inoperable)	23 ⇒ 5.0
81120	Left front power window switch (S21/1) (front center console) stuck or wire Γ1– (short to grnd)	23 ⇒ 20.0
BIISI	Right front power window switch (S21/2) (front center console) or wire $\Gamma$ 1– (short to grnd)	23 ⇒ 24.0
81263	Retractable hardtop hydraulic unit (A7/5) temperature > 95 °C	23 ⇒ 8.0
81264	Retractable hardtop hydraulic unit (A7/5) temperature > 120 °C	23 ⇒ 8.0
81265	Temperature sensor wires – // –, Г1+, Г1–	23 ⇒ 8.0
81266	Retractable hardtop hydraulic unit (A7/5) locked up	23 ⇒ 6.0
81267	Implausible RPM and VSS status signals	23 ⇒ 34.0, 35.0
81268	Invalid RPM status signal	23 ⇒ 34.0
81269	Retractable hardtop switch (S84) or wires Γ1–	23 ⇒ 17.0
81270	Trunk lid open limit switch (S69/9) and trunk lid closed/locked left (and right) limit switches (69/7 and 69/8) activated simultaneously	23 ⇒ 12.0, 13.0

<sup>1)</sup> Observe Preparation for Test, see 22.

DTC	Possible cause	Test step/Remedy 1)
BIZ7I	Retractable hardtop open/stored limit switch (S69/11) and retractable hardtop closed limit switch (S69/1) activated simultaneously	23 ⇒ 10.0, 11.0
81272	Implausible limit switch signals S69/1, S69/2, S69/3 and S69/11: Retractable hardtop locked limit switch (left rotary latch) (S69/3) and/or right (S69/2) activated, while retractable hardtop open/stored limit switch (S69/11) and retractable hardtop closed limit switch (S69/1) are not activated	23 ⇒ 9.0, 10.0, 11.0
B1273	Implausible limit switch signals S69/1, S69/7, S69/8 and S69/11: Trunk lid closed/locked left limit switch (S69/7) and/or right (S69/8) activated, while retractable hardtop open/stored limit switch (S69/11) and retractable closed limit switch (S69/1) are not activated	23 ⇒ 10.0, 11.0, 13.0
81274	No signals from limit switches	24
81275	Trunk lid open limit switch (S69/9) stuck or wires Γ1–, Γ1+, – // –	23⇒ 12.0
81276	Trunk lid closed/locked left limit switch (S69/7) or right (S69/8) stuck or wires $\Gamma 1-$ , $\Gamma 1+$ , $ //$ $-$	23⇒ 13.0
81277	Retractable hardtop open/stored limit switch (S69/11) stuck or wires $\Gamma$ 1–, $\Gamma$ 1+,-//–	23⇒ 11.0
81278	Retractable hardtop closed limit switch (S69/1) stuck or wires Γ1–, Γ1+, – // –	23⇒ 10.0
81279	Retractable hardtop locked (right rotary latch) limit switch (S69/2) or left (S69/3) stuck or wires $\Gamma 1-$ , $\Gamma 1+$ , $ //$ $-$	23⇒ 9.0
B12B2	No locking current left front power window (M10/3)or combination control module (N10-3)	Left front power window motor (M10/3), N10-3

Observe Preparation for Test, see 22.

DTC	Possible cause	Test step/Remedy 1)
8(283	No locking current right front power window (M10/4) or combination control module (N10-3)	Right front power window motor (M10/4), N10-3
81400	Left front power window motor (M10/3) or terminal 30A or combination control module (N10-3)	23 ⇒ 2.0, 21.0, 22.0
81401	Right front power window motor (M10/4) or terminal 30A or combination control module (N10-3)	23 ⇒ 2.0, 25.0, 26.0
81402	Left rear power window motor (M10/5) or terminal 30B or combination control module (N10-3)	23⇒ 5.0, 27.0, 28.0
B1403	Right rear power window motor (M10/6) or terminal 30B or combination control module (N10-3)	23⇒ 5.0, 29.0, 30.0
81490	Pump relay (A7/5k1) wires – // –, $\Gamma$ 1+, $\Gamma$ 1– or combination control module (N10-3)	23⇒ 7.0
B1491	Trunk lid solenoid valve (A7/5y2) wires – // –, Г1+, Г1– or combination control module (N10-3)	23⇒ 32.0
B1492	Retractable hardtop solenoid valve (A7/5y1) wires – // –, Г1+, Г1– or combination control module (N10-3)	23⇒ 31.0
B1493	Control wire for gong $\Gamma = -$ , $\Gamma = -$	23⇒ 33.0
B1494	Wires for indicator lamp hardtop/soft top switch (S84) Γ1+, Γ1–	23⇒ 16.0

<sup>1)</sup> Observe Preparation for Test, see 22.

#### **Diagnosis – Recalling Actual Values with HHT**

The following tests or activations are possible with the **Hand-Held Tester** 

#### Prerequisite for recalling the actual values

- 1. Fuses O. K.
- 2. Battery voltage > 11 V.
- 3. Connect HHT according to connection diagram, see section 0.

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The gong in the instrument cluster can be actuated via the HHT.

## **Electrical Test Program – Recalling Power Windows Actual Values with HHT**

$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	01	Terminal 15R		Ignition switch position 1 ON OFF	on OFF	23 ⇒ 3.0
2.0	02	Terminal 15		Ignition switch position 2 ON OFF	on OFF	23 ⇒ 4.0
3.0	03	Low voltage		>10V < 10V	YES NO	23 ⇒ 1.0 – 5.0
4.0	04	High voltage		> 15.5V < 15.5V	YES NO	23 ⇒ 1.0 – 5.0
5.0	05	Left front power window switch (front center console) (S21/1)		Ignition: <b>ON</b> Switch S21/1: Press open (backward) Press open (past first detent)  Not activated Press close (forward)	EXPRESS DOWN 0	23 ⇒ 20.0
6.0	06	One touch function, left front and right front power windows		Press retractable hardtop switch (S84) twice within 0.5 seconds: Press open (backward) Not activated Press close (forward)	0	23 ⇒ 17.0, 21.0, 25.0

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## **Electrical Test Program – Recalling Power Windows Actual Values with HHT**

$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.0	רם	Left front power window motor (M10/3) activation via combination control module (N10-3)		Switch S21/1:  Press open (backward)  Not actuated  Press close (forward)	0	23 ⇒ 21.0
8.0	08	Right front power window switch (S21/2)		Switch S21/2: Press open (backward) Press open (past first detent) Not actuated Press close (forward)	EXPRESS DOWN D	23 ⇒ 24.0
9.0	09	Right front power window motor (M10/4) activation via combination control module (N10-3)		Switch S21/2: Press open (backward) Not actuated Press close (forward)	0	23 ⇒ 25.0

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$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	01	Terminal 15R		Ignition switch position 1 ON OFF	on OFF	23 ⇒ 3.0
2.0	02	Terminal 15		Ignition switch position 2 ON OFF	on off	23 ⇒ 4.0
3.0	03	Low voltage		< 10V > 10V	YES NO	23 ⇒ 1.0 – 5.0
4.0	04	High voltage		> 15.5V < 15.5V	YES NO	23 ⇒ 1.0 – 5.0
5.0	П	Left front wheel speed signal (VSS) from traction systems control module (N47)		Vehicle stationary Vehicle moving > 3 mph (5 km/h)	·	23 ⇒ 35.0
6.0	18	Left front wheel speed status signal (VSS) from traction systems control module (N47)		Vehicle stationary Vehiclemoving > 3 mph (5 km/h)	0 mph > 3 mph (5 km/h)	23 ⇒ 34.0
7.0	21	Retractable hardtop hydraulic unit (A7/5) temperature		< 203 °F (95 °C) > 203 °F (95 °C)	√ F	23 ⇒ 8.0

$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0	22	Retractable hardtop switch (S84)		Switch S84:  Press open (backward)  Not actuated  Press close (forward)	0	23 ⇒ 16.0, 17.0
9.0	23	Indicator lamp retractable hardtop switch (S84)		Hardtop/soft top switch:  Depressed  Not activated		23 ⇒ 16.0
10.0	24	Left rear power window motor (M10/5) activation		Ignition: <b>ON</b> Retractable hardtop closed, retractable hardtop switch (S84): Press open (backward) Not actuated Press close (forward)	0	23 ⇒ 27.0
11.0	25	Right rear power window motor (M10/6) activation		Ignition: <b>ON</b> Retractable hardtop closed, retractable hardtop switch (S84): Press open (backward) Not actuated Press close (forward)	0	23 ⇒ 29.0

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$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
12.0	26	Hydraulic unit relay (A7/5k1) activation		Ignition: <b>ON</b> Retract. hardtop closed. Retract. hard top switch (S84): Press open (backward) Press close (forward)	l	23 ⇒ 7.0
13.0	27	Retractable hardtop solenoid valve (A7/5y1) activation		Ignition: <b>ON</b> Retract. hardtop closed.  Retract. hardtop switch  (S84):  Press open (backward)  Press close (forward)	l	23 ⇒ 31.0
14.0	28	Trunk lid solenoid valve (A7/5y2) activation		Ignition: <b>ON</b> Retract. hardtop closed. Retract. hardtop switch (S84): Press open (backward) Press close (forward)		23 ⇒ 32.0
15.0	29	Retractable luggage cover engaged limit switch (S69/10)		Luggage cover: Extended (engaged) Not extended (open)		23 ⇒ 14.0

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$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
16.0	30	Trunk lock/trunk illumination rotary latch selector switch (S69/12)			OPEN CLOSED	23 ⇒ 15.0
17.0	31	Retractable hardtop closed limit switch (left/right rotary latch, S69/2, S69/3)		Press retractable hardtop switch (S84) to open (backwards): Retract. hardtop opens Press retract. hardtop switch (S84) to close (forwards): Retract. hardtop closes		23 ⇒ 9.0
18.0	32	Retractable hardtop closed limit switch (right pin) (S69/1)		Press retractable hardtop switch (S84) to open (backwards) Retract. hardtop opens Press retract. hardtop switch (S84) to close (forwards) Retract. hardtop closes		23 ⇒ 14.0

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$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
19.0	33	Trunk lid closed/locked left or right limit switch (S69/7 or S69/8)		Press switch (S84) to open (backwards)  Trunk lid opens Press retract. hardtop switch (S84) to close (forwards) Trunk lid closes and locks		23 ⇒ 13.0
20.0	34	Trunk lid open limit switch (S69/9)		Press switch (S84) to open (backwards)  Trunk lid opens Press retract. hardtop switch (S84) to close (forwards)  Trunk lid closes		23 ⇒ 12.0
21.0	35	Retractable hardtop open/stored limit switch (S69/11)		Press switch (S84) to open (backwards) Retractable hardtop open/stored Press retract. hardtop switch (S84) to close (forwards) Retract hardtop closes		23 ⇒ 11.0

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Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 1 Indicator lamp in the retractable hardtop switch (S84) does not illuminate when ignition switch is switched "ON"	Voltage supply, circuit 15 Retractable hardtop switch (S84) Combination control module (N10-3)	23 ⇒4.0 23 ⇒16.0 N10-3
No. 2 Indicator lamp in switch S84 flashes at 6-times frequency (impulse signal) when switch is actuated	Retractable luggage cover engaged limit switch (S69/10) Trunk lock/trunk illumination rotary latch selector switch (S69/12)	23 ⇒ 14.0 23 ⇒ 15.0
No. 3 Indicator lamp in S84 switch comes on with the hardtop open (no impulse signal) Gong sounds when driving	Trunk lid closed/locked left limit switch (S69/7) not actuated Trunk lid closed/locked right limit switch (S69/8) not actuated Retractable hardtop locked limit switch (left rotary latch) (S69/3) not actuated Retractable hardtop locked limit switch (right rotary latch) (S69/2) not actuated	$23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$
	After 6.5 minutes in rest mode, the gong in the instrument cluster will be activated for 30 seconds	
No. 4 Indicator lamp in switch S84 flashes (impulse signal) without switch actuation	Trunk lid closed/locked left limit switch (S69/7) not actuated Trunk lid closed/locked right limit switch (S69/8) not actuated Retractable hardtop locked limit switch (left rotary latch) (S69/3) not actuated Retractable hardtop locked limit switch (right rotary latch) (S69/2) not actuated	$23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$
	After 6.5 minutes in rest mode the gong in the instrument cluster will be activated for 30 seconds	

<sup>1)</sup> Observe Preparation for Test, see 22.

11.4 RH 14/1

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 5 Indicator lamp in switch S84 flashes (impulse signal) when switch is actuated	DTC recognition (DTC will be stored in combination control module)	Readout DTC with Hand-Held- Tester
No. 6 Indicator lamp in S84 switch comes on with the hardtop closed/locked (no impulse signal) Gong sounds while driving	Trunk lid closed/locked left limit switch (S69/7) not actuated Trunk lid closed/locked right limit switch (S69/8) not actuated Retractable hardtop locked limit switch (left rotary latch)	23 ⇒ 13.0 23 ⇒ 13.0
	(S69/3) not actuated Retractable hardtop locked limit switch (right rotary latch) (S69/2) not actuated	$23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$

Observe Preparation for Test, see 22.

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 7  During retractable hardtop opening sequence:	Hydraulic unit does not function	23 ⇒ 6.0, 7.0
Side windows front and rear do not open	Retractable luggage cover engaged limit switch (S69/10) Trunk lock/trunk illumination rotary latch selector	23 ⇒ 14.0
	switch (S69/12)	23 ⇒ 15.0
	Trunk lid closed/locked left limit switch (S69/7) or right (S69/8) and Trunk lid open limit switch (S69/9) actuated simultaneously	23 ⇒ 12.0, 13.0
	Retractable hardtop open/stored limit switch (S69/11) and retractable hardtop closed limit switch (S69/1) actuated simultaneously	23 <b>⇒</b> 10.0, 11.0
	Retractable hardtop locked limit switch (left rotary latch (S69/3) or right (S69/2) are actuated while retractable hardtop open/stored limit switch (S69/11) and retractable hardtop closed limit switch (S69/1) are not actuated Trunk lid closed/locked left limit switch (S69/7) or right (S69/8) actuated while retractable hardtop open/stored limit switch (S69/11) and retractable hardtop closed limit switch	23 ⇒ 9.0, 10.0, 11.0
	(S69/1) are not actuated	23 ⇒ 10.0, 11.0, 13.0
	No limit switches signal Supply voltage power windows Vehicle speed signal (VSS) Pump temperature signal Retractable hardtop switch (S84) Combination control module (N10-3)	$24$ $23 \Rightarrow 19.0 - 30.0$ $23 \Rightarrow 34.0, 35.0$ $23 \Rightarrow 8.0$ $23 \Rightarrow 17.0$ $23 \Rightarrow 2.0, 5.0$
	Retractable hardtop solenoid valve (A7/5y1) Trunk lid solenoid valve (A7/5y2)	23 ⇒ 31.0 23 ⇒ 32.0

Observe Preparation for Test, see 22.

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 8 Retractable hardtop does not unlock in front	Trunk lock/trunk illumination rotary latch selector switch (S69/12)	23 ⇒ 15.0
	Retractable luggage cover engaged limit switch (S69/10)	23 ⇒ 14.0
	Retractable hardtop locked limit switch (left rotary latch) (S69/3) Retractable hardtop locked limit switch (right rotary latch) (S69/2)	$23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$
	Retractable hardtop open/stored limit switch (S69/11) Trunk lid open limit switch (S69/9) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8)	$23 \Rightarrow 11.0$ $23 \Rightarrow 12.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$
	Retractable hardtop hydraulic unit (A7/5) Retractable hardtop solenoid valve (A7/5y1) Trunk lid solenoid valve (A7/5y2) Check retractable hardtop actuation hydraulic cylinder	$23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 31.0$ $23 \Rightarrow 32.0$ $33 \Rightarrow 4.0$

<sup>1)</sup> Observe Preparation for Test, see 22.

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 9 Trunk lid does not unlock or open	Trunk lock/trunk illumination rotary latch selector switch (S69/12) Retractable luggage cover engaged limit switch (S69/10) Retractable hardtop locked limit switch (left rotary latch) (S69/3)	$23 \Rightarrow 15.0$ $23 \Rightarrow 14.0$ $23 \Rightarrow 9.0$
	Retractable hardtop locked limit switch (right rotary latch) (S69/2)	23 ⇒ 9.0
	Retractable hardtop open/stored limit switch (S69/11) Trunk lid open limit switch (S69/9) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8)	$23 \Rightarrow 11.0$ $23 \Rightarrow 12.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$
	Retractable hardtop hydraulic unit (A7/5) Retractable hardtop solenoid valve (A7/5y1) Trunk lid solenoid valve (A7/5y2) Check retractable hardtop actuation hydraulic cylinder	$23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 31.0$ $23 \Rightarrow 32.0$ $33 \Rightarrow 4.0$
No. 10 Retractable hardtop does not open	Trunk lock/trunk illumination rotary latch selector switch (S69/12)	23 ⇒ 15.0
	Retractable luggage cover engaged limit switch (S69/10) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8) Retractable hardtop open/stored limit switch (S69/11)	$23 \Rightarrow 14.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 11.0$
	Retractable hardtop hydraulic unit (A7/5) Trunk lid solenoid valve (A7/5y2) Check retractable hardtop actuation hydraulic cylinder	$23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 32.0$ $33 \Rightarrow 4.0$

<sup>1)</sup> Observe Preparation for Test, see 22.

11.4 RH 14/5

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 11 Trunk lid does not close or lock	Trunk lock/trunk illumination rotary latch selector switch (S69/12)	23 ⇒ 15.0
	Retractable luggage cover engaged limit switch (S69/10) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8) Retractable hardtop locked limit switch	23 ⇒ 14.0 23 ⇒ 13.0 23 ⇒ 13.0
	(left rotary latch) (S69/3) Retractable hardtop locked limit switch	23 ⇒ 9.0
	(right rotary latch) (S69/2)	23 ⇒ 9.0
	Trunk lid open limit switch (S69/9)	23 ⇒ 12.0
	Retractable hardtop hydraulic unit (A7/5) Check trunk lid actuation hydraulic cylinder	$23 \Rightarrow 6.0, 7.0$ $33 \Rightarrow 5.0$
No. 12 After retractable hardtop opening sequence, the side windows	Voltage supply power windows Trunk lock/trunk illumination rotary latch selector	23 ⇒ 19.0 – 30.0
do not close	switch (S69/12)	23 ⇒ 15.0
	Retractable luggage cover engaged limit switch (S69/10)	23 ⇒ 14.0
	Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8)	23 ⇒ 13.0 23 ⇒ 13.0
	Retractable hardtop locked limit switch (left rotary latch) (S69/3)	23 ⇒ 9.0
	Retractable hardtop locked limit switch	
	(right rotary latch) (S69/2)	23 ⇒ 9.0
	Trunk lid open limit switch (S69/9) Combination control module (N10-3)	$23 \Rightarrow 12.0$ $23 \Rightarrow 2.0, 5.0$

<sup>1)</sup> Observe Preparation for Test, see 22.

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 13  During retractable hardtop closing sequence:	Hydraulic unit does not function Trunk lock/trunk illumination rotary latch selector	23 ⇒ 6.0, 7.0
Retractable hardtop does not close	switch (S69/12)	23 ⇒ 15.0
·	Retractable luggage cover engaged limit switch (S69/10)	23 ⇒ 14.0
	Trunk lid closed/locked left limit switch (S69/7) or right (S69/8) and trunk lid open limit switch (S69/9) actuated simultaneously  Retractable hardtop open/stored limit switch (S69/11) and	23 ⇒ 12.0, 13.0
	retractable hardtop closed limit switch (S69/1) actuated	00 -> 10 0 11 0
	simultaneously Retractable hardtop locked limit switch (left rotary latch (S69/3) or right (S69/2) are actuated while retractable hardtop open/stored limit switch (S69/11) and retractable	23 ⇒ 10.0, 11.0
	hardtop closed limit switch (S69/1) are not actuated Trunk lid closed/locked left limit switch (S69/7) or right (S69/8) actuated while retractable hardtop open/stored limit switch (S69/11) and retractable hardtop closed limit switch	23 ⇒ 9.0, 10.0, 11.0
	(S69/1) are not actuated	23 ⇒ 10.0, 11.0, 13.0
	No limit switches signal	24
	Supply voltage power windows	23 ⇒ 19.0 – 30.0
	Vehicle speed signal (VSS)	23 ⇒ 34.0, 35.0
	Pump temperature signal	23 ⇒ 8.0
	Retractable hardtop switch (S84) Combination control module (N10-3)	$\begin{array}{c} 23 \Rightarrow 17.0 \\ 23 \Rightarrow 1.0, 3.0, 4.0 \end{array}$
	Retractable hardtop solenoid valve (A7/5y1)	23 ⇒ 31.0
	Trunk lid solenoid valve (A7/5y2)	23 ⇒ 32.0

Observe Preparation for Test, see 22.

11.4 RH 14/7

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 14 Trunk lid does not unlock or open	Retractable hardtop locked limit switch (left rotary latch) (S69/3) Retractable hardtop locked limit switch	23 ⇒ 9.0
	(right rotary latch) (S69/2)	23 ⇒ 9.0
	Trunk lid open limit switch (S69/9)	23 ⇒ 12.0
	Trunk lid closed/locked left limit switch (S69/7)	23 ⇒ 13.0
	Trunk lid closed/locked right limit switch (S69/8) Retractable luggage cover engaged limit switch (S69/10) Trunk lock/trunk illumination rotary latch selector	23 ⇒ 13.0 23 ⇒ 14.0
	switch (S69/12)	23 ⇒ 15.0
	Retractable hardtop hydraulic unit (A7/5)	23 ⇒ 6.0, 7.0
	Trunk lid solenoid valve (A7/5y2)	23 ⇒ 32.0
	Check retractable hardtop actuation hydraulic cylinder	33 ⇒ 4.0
No. 15 Retractable hardtop does not unlock	Retractable hardtop locked limit switch (left rotary latch) (S69/3) Retractable hardtop locked limit switch	23 ⇒ 9.0
	(right rotary latch) (S69/2)	23 ⇒ 9.0
	Trunk lid open limit switch (S69/9)	23 ⇒ 12.0
	Trunk lid closed/locked left limit switch (S69/7)	23 ⇒ 13.0
	Trunk lid closed/locked right limit switch (S69/8)	23 ⇒ 13.0
	Retractable luggage cover engaged limit switch (S69/10) Trunk lock/trunk illumination rotary latch selector	23 ⇒ 14.0
	switch (S69/12)	23 ⇒ 15.0
	Retractable hardtop hydraulic unit (A7/5) Trunk lid solenoid valve (A7/5y2)	$23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 32.0$

<sup>1)</sup> Observe Preparation for Test, see 22.

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 16 Retractable hardtop does not close	Retractable hardtop closed limit switch (right pin) (S69/1) Retractable hardtop open/stored limit switch (S69/11)	23 ⇒ 10.0 23 ⇒ 11.0
	Retractable hardtop hydraulic unit (A7/5) Retractable hardtop solenoid valve (A7/5y1) Trunk lid solenoid valve (A7/5y2) Retractable hardtop hydraulic unit (A7/5)	$23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 31.0$ $23 \Rightarrow 32.0$ $33 \Rightarrow 1.0$
No. 17 Trunk lid does not close or lock	Retractable hardtop locked limit switch (left rotary latch) (S69/3) Retractable hardtop locked limit switch (right rotary latch) (S69/2) Trunk lid open limit switch (S69/9) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8)  Retractable hardtop hydraulic unit (A7/5) Retractable hardtop solenoid valve (A7/5y1) Check retractable hardtop actuation hydraulic cylinder	$23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$ $23 \Rightarrow 12.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 31.0$ $33 \Rightarrow 7.0$
No. 18 Retractable hardtop does not lock	Retractable hardtop locked limit switch (left rotary latch) (S69/3) Retractable hardtop locked limit switch (right rotary latch) (S69/2) Trunk lid open limit switch (S69/9) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8)  Retractable hardtop hydraulic unit (A7/5) Retractable hardtop solenoid valve (A7/5y1) Check trunk lid actuation hydraulic cylinder	$23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$ $23 \Rightarrow 12.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 31.0$ $23 \Rightarrow 31.0$ $23 \Rightarrow 5.0$

<sup>1)</sup> Observe Preparation for Test, see 22.

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 19 Side windows do not close	Retractable hardtop locked limit switch (left rotary latch) (S69/3) Retractable hardtop locked limit switch (right rotary latch) (S69/2)	$23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$
	Trunk lid open limit switch (S69/9) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8) Voltage supply power windows Combination control module (N10-3)	$23 \Rightarrow 12.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 19.0 - 30.0$ $23 \Rightarrow 27.0, 29.0$
	Retractable hardtop hydraulic unit (A7/5) Retractable hardtop solenoid valve (A7/5y1)	$23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 31.0$
No. 20 Front power windows do not close	Retractable hardtop locked limit switch (left rotary latch) (S69/3) Retractable hardtop locked limit switch (right rotary latch) (S69/2)	$23 \Rightarrow 9.0$ $23 \Rightarrow 9.0$
	Trunk lid open limit switch (S69/9) Trunk lid closed/locked left limit switch (S69/7) Trunk lid closed/locked right limit switch (S69/8) Voltage supply power windows Combination control module (N10-3)	$23 \Rightarrow 12.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 13.0$ $23 \Rightarrow 19.0 - 30.0$ $23 \Rightarrow 21.0, 25.0$
	Retractable hardtop hydraulic unit (A7/5) Retractable hardtop solenoid valve (A7/5y1)	$23 \Rightarrow 6.0, 7.0$ $23 \Rightarrow 31.0$

<sup>1)</sup> Observe Preparation for Test, see 22.

Complaint/Problem	Possible cause	Test step/Remedy 1)
No. 21 Side windows do not open or close with retractable hardtop switch (S84) but function properly with power window switch	Retractable hardtop not locked Retractable hardtop switch (S84) Combination control module (N10-3)	$23 \Rightarrow 9.0, 13.0$ $23 \Rightarrow 17.0$ $23 \Rightarrow 21.0, 25.0$
No. 22 Side windows do not open or close with power windows switch (first detent)	Left front power window switch (S21/1) Right front power window switch (S21/2) Left front power window motor (M10/3) Right front power window motor (M10/4) Combination control module (N10-3)	$23 \Rightarrow 20.0$ $23 \Rightarrow 24.0$ $23 \Rightarrow 22.0$ $23 \Rightarrow 26.0$ $23 \Rightarrow 19.0, 23.0$
No. 23 Side windows do not open with one touch function	Left front power window switch (S21/1) Right front power window switch (S21/2) Combination control module (N10-3)	$23 \Rightarrow 20.0$ $23 \Rightarrow 24.0$ $23 \Rightarrow 19.0, 23.0$
No. 24 Retractable hardtop opening or closing sequence too slow	Check hydraulic unit	33 ⇒ 1.0

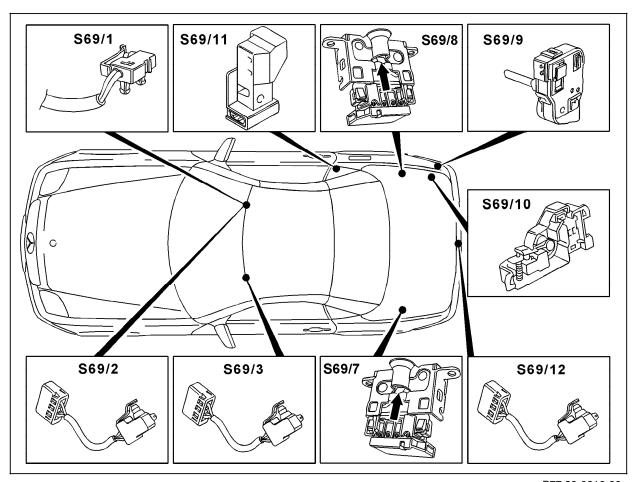
<sup>1)</sup> Observe Preparation for Test, see 22.

### **Electrical Test Program – Component Locations**

#### **Limit switches**

Figure 1

rigure i	
S69/1	Retractable hardtop closed limit switch (right pin)
S69/2	Retractable hardtop locked limit switch (right rotary latch)
S69/3	Retractable hardtop locked limit switch (left rotary latch)
S69/7	Trunk lid closed/locked left limit switch
S69/8	Trunk lid closed/locked right limit switch
S69/9	Trunk lid open limit switch
S69/10	Retractable luggage cover engaged limit switch
S69/11	Retractable hardtop open/stored limit switch
S69/12	Trunk lock/trunk illumination rotary latch selector switch



P77.39-0216-06

#### **Electrical Test Program – Component Locations**

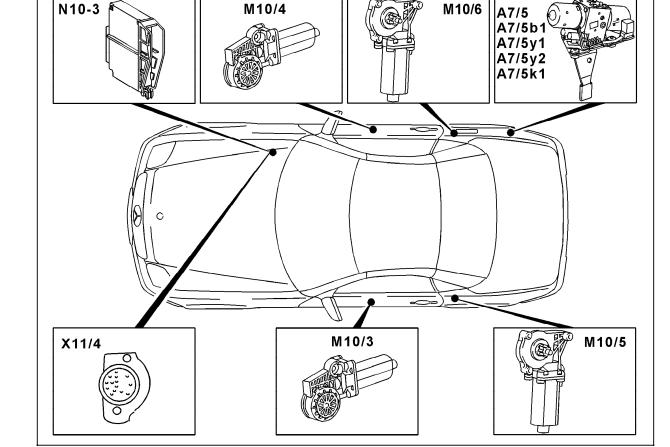


Figure 2

A7/5 Retractable hardtop hydraulic unit A7/5b1 Overload protection thermocouple A7/5k1 Hydraulic unit relay Retractable hardtop solenoid valve A7/5y1

A7/5y2 Trunk lid solenoid valve

M10/3 Left front power window motor (voltage supply) Right front power window motor (voltage supply) M10/4

M10/5 Left rear power window motor M10/6 Right rear power window motor N10-3 Combination control module X11/4 Data link connector (DTC readout)

P77.39-0217-06

## **Electrical Test Program – Component Locations**

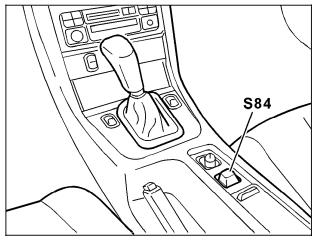


Figure 3 P77.39-0242-01
S84 Retractable hardtop switch

#### **Electrical Test Program – Component Connections**

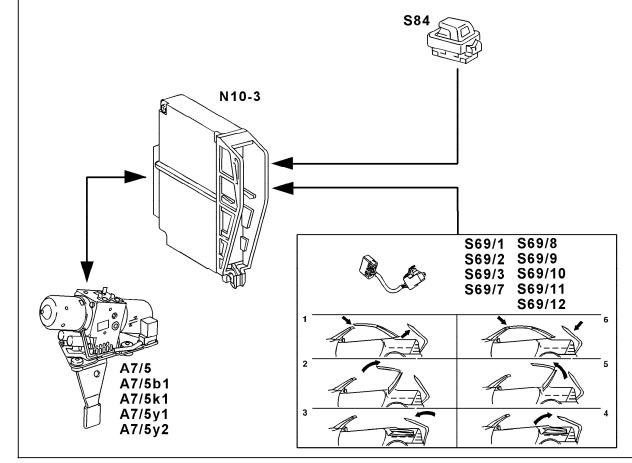


Figure 1

S69/12

S84

A7/5 Retractable hardtop hydraulic unit Overload protection thermocouple A7/5b1 A7/5k1 Hydraulic unit relay A7/5y1 Retractable hardtop solenoid valve Trunk lid solenoid valve A7/5y2 N10-3 Combination control module S69/1 Retractable hardtop closed limit switch (right pin) S69/2 Retractable hardtop locked limit switch (right rotary latch) S69/3 Retractable hardtop locked limit switch (left rotary latch) S69/7 Trunk lid closed/locked left limit switch S69/8 Trunk lid closed/locked right limit switch S69/9 Trunk lid open limit switch S69/10 Retractable luggage cover engaged limit switch S69/11 Retractable hardtop open/stored limit switch

Trunk lock/trunk illumination rotary latch selector switch

P54.21-0227-06

Retractable hardtop switch

## **Electrical Test Program – Component Connections**

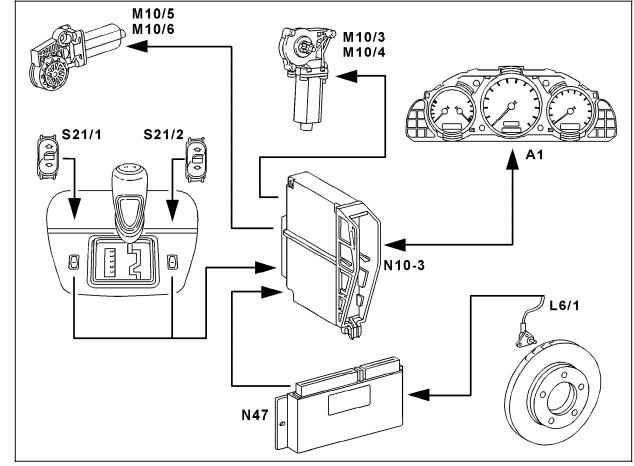


Figure 2

Α1 Instrument cluster Left front axle VSS sensor L6/1 M10/3 Left front power window motor M10/4 Right front power window motor M10/5 Left rear power window motor M10/6 Right rear power window motor N10-3 Combination control module N47 Traction systems control module

S21/1 Left front power window switch (front center console)
S21/2 Right front power window switch (front center console)

P54.21-0226-06

### **Electrical Test Program – Preparation for Test**

Preliminary work:	
Diagnosis - Diagnostic Trouble Code (DTC) Memory	 12

- Fuses O. K.
- Battery voltage 11 14 Volts (always connect battery charger when working on the hardtop).
- Always disconnect battery ground (B-) first before disconnecting or connecting combination control module (N10-3) to avoid storage of DTC faults.
- Use vehicle specific HHT module.
- Connect HHT as described in section 0 of the Diagnostic Manual.

#### Note regarding testing with the HHT:

Actual values:

**OPEN** corresponds to 11 – 14 V.

CLOSED corresponds to 0 - 1 V.

#### **Electrical wiring diagrams**

See Electrical Troubleshooting Manual, Model 170, Volume 2, Group 77

## ♠ Danger of injury

Risk of personal injury (pinching/crushing) while working underneath pretensioned springs and or spring struts. Use only approved special tools, tensioning devices, stops etc. Visually inspect special tools for proper function and possible damage prior to performing work.

Risk of personal injury (pinching/crushing) while working on partially opened retractable hardtop. Or while hardtop de-pressurizes after 7 seconds in the rest mode, depending on the position, the hardtop will come to rest upon itself. While working on the retractable hardtop, it is important to use all special tools (stops/supports) as a safety precaution.

Risk of personal injury (pinching/crushing) and in extreme cases loss of limbs or fingers, while reaching into moving components or mechanical units. It is important that limbs, fingers and body parts be kept away from the operating areas of the moving components.

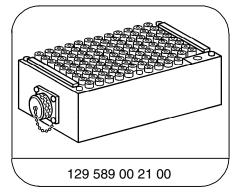
Lastly, it is important to wear safety gloves when performing the tests.

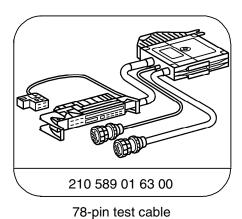
#### **Additional Safety Notes:**

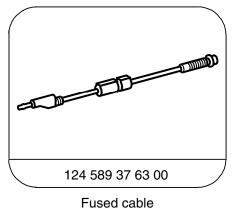
Prior to any testing, it is important to review and adhere to the safety notes in the **Hydraulic Test Program**, 33 as well.

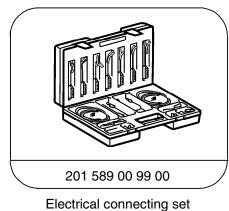
## **Electrical Test Program – Preparation for Test**

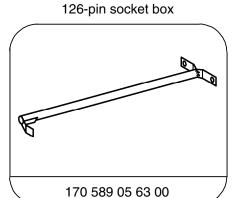
#### **Special Tools**











Assembly support for Vario roof

#### Conventional tools, test equipment

Description	Brand, model, etc.
Multimeter 1)	Fluke models 23, 83, 85, 87
Battery charger 1)	Local supply

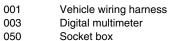
<sup>1)</sup> Available through the MBUSA Standard Equipment Program.

## **Electrical Test Program – Preparation for Test**



Ignition: OFF

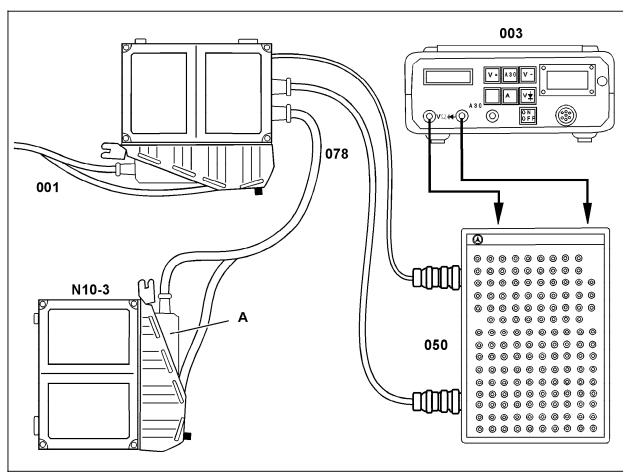
**Connection Diagram - Socket Box** 



078 Test harness 210 589 01 63 00

A Connector 63-pins

N10-3 Combination control module



P82.40-0216-06

$\Rightarrow$		Test scope	Test con	nection		Test condition	Nominal value	Possible cause/Remedy
1.0	B1010 B1011	Voltage supply Circuit 30E, 31E	61 — <b>ఁ</b>	N10-3	<b>)</b> — 75		11 – 14 V	Wiring.
2.0	B1016 B1400 B1401	Voltage supply Circuit 30A, 31A (Front power windows)	5 <b>(</b>	N10-3	<b>)</b> — 44		11 – 14 V	Wiring.
3.0	B1010 B1011	Voltage supply Circuit 15R		<u></u> ( <u>V</u> ) <u>+</u> -	N10-3 3	Ignition: <b>ON</b>	11 – 14 V	Wiring.
4.0	B1010 B1011	Voltage supply Circuit 15	上	<u></u> ( <u>V</u> ) <u>+</u> -	N10-3 	Ignition: <b>ON</b>	11 – 14 V	Wiring.
5.0	B1017 B1402 B1403	Voltage supply Circuit 30B, 31B (Rear power windows)	43 — <b>c</b>	N10-3	<b>&gt;</b> —4		11 – 14 V	Wiring.
6.0	B1266	Hydraulic unit motor (A7/5m1) Voltage supply	8—(	A7/5x1 <del>-</del> <u>(</u> <u>V</u> ) <sup>+</sup> <del>-</del>	<b>)</b> —3		11 – 14 V	Wiring.
6.1		Hydraulic unit motor (A7/5m1)	2—(	A7/5k1 - <b>()</b> -	<b>)</b> —8	Disconnect hydraulic unit relay (A7/5k1)	Hydraulic unit motor runs	Hydraulic unit motor (A7/5m1).
						Bridge pin 2 with pin 8 of the relay connector using test cable (124 589 37 63 00)		

$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.0	B1490	Hydraulic unit relay (A7/5k1) activation from combination control module (N10-3)		D-3 Luggage cover in trunk extended and engaged.  Trunk lid closed. Ignition: ON Press retract. hardtop switch (S84) backward (open) towards front (close)	11 – 14 V	Wiring, ⇒ 17.0, N10-3
7.1		Hydraulic unit relay (A7/5k1)	N10-3	Ignition: <b>OFF</b> Disconnect connector A from combination control module (N10-3)	Hydraulic unit motor (A7/5m1) runs	A7/5k1
8.0	81263 81264 81265	Overload protection thermocouple (A7/5b1)	N10-3	Ignition: <b>OFF</b> Disconnect connector A from combination control module (N10-3)  Pump temp.: 77°F (25°C)  Pump temp.: 185°F (85°C)  Pump temp.: 203°F (95°C)  Pump temp.: 250°F (120°C)	250 kΩ 26 kΩ 19.5 kΩ	Wiring, A7/5b1

11.4 RH 23/2

$\Rightarrow$		Test scope	Test con	nection		Test condition	Nominal value	Possible cause/Remedy
9.0	81272 81279	Retractable hardtop locked limit switch (right rotary latch resp. left) (S69/2 or S69/3)	30 — <b>c</b>	N10-3	<b>)</b> — 58	Ignition: <b>ON</b> Retractable hardtop: Locked Unlocked	11 – 14 V < 1 V	Wiring, S69/2, S69/3
10.0	81271 81272 81273 81278	Retractable hardtop closed limit switch (right pin) (S69/1)	32 — <b>c</b>	N10-3	<b>)</b> — 58		11 – 14 V 0 – 1 V	Wiring, S69/1
11.0	81271 81272 81273 81277 81278	Retractable hardtop open/stored limit switch (S69/11)	33 <b>~</b> (	N10-3 ————————————————————————————————————	<b>)</b> — 58	Ignition: <b>ON</b> Retractable hardtop: Closed Open/stored	0 – 1 V 11 – 14 V	Wiring, S69/11
12.0	81270 81275	Trunk lid open limit switch (S69/9)	52 — <b>ఁ</b>	N10-3	<b>)</b> — 58		0 – 1 V 11 – 14 V	Wiring, S69/9

$\Rightarrow$		Test scope	Test connection		Test condition	Nominal value	Possible cause/Remedy
13.0	81270 81273 81276	Trunk lid closed/locked left resp right limit switch (S69/7 or S69/8)	N10-3 □□□□□ 37 — ( □□□□ +	<b>)</b> — 58	Ignition: <b>ON</b> Retractable hardtop: Closed/locked Open	11 – 14 V 0 – 1 V	Wiring, S69/7 or S69/8
14.0		Retractable luggage cover engaged limit switch (S69/10)	N10-3	<b>)</b> — 58	Ignition: <b>ON</b> Retractable luggage cover: Engaged Not engaged	11 – 14 V 0 – 1 V	Wiring, S69/10
15.0		Trunk lock/trunk illumination rotary latch selector switch (S69/12)	N10-3 69 — ( —————————————————————————————————	<b>)</b> — 58		11 – 14 V 0 – 1 V	Wiring, S69/12
16.0	B1494	Voltage supply Indicator lamp in retractable hardtop switch (S84)	N10-3	<b>)</b> — 58	Ignition: <b>ON</b> Actuate S84 switch.	11 – 14 V	Wiring, S84, Combination control module (N10-3).
17.0	81269	Combination control module (N10-3) activation from retractable hardtop switch (S84)	N10-3 28 — • • • • • • • • • • • • • • • • • •	<b>)</b> — 58	Ignition: <b>ON</b> Press S84 switch towards: Open	11 – 14 V	Wiring, S84
			29 — ( — <u>(</u> )+	<b>)</b> — 58	Close	11 – 14 V	

11.4 RH

$\Rightarrow$		Test scope	Test con	nection		Test condition	Nominal value	Possible cause/Remedy
18.0		Retractable hardtop switch (S84) illumination	4 —	\$84	<b>)</b> —1	Ignition: <b>ON</b>	11 – 14 V	Wiring.
						Switch lights on.		
19.0		Ground connection for the left front power window switch (S21/1) from combination control module (N10-3)	77 — <b>(</b>	N10-3 <u>□</u>	<b>)</b> — 58	Ignition: <b>ON</b>	11 – 14 V	Wiring, Combination control module (N10-3).
20.0	B1120	Left front power window switch (S21/1)	39 —	N10-3 ————————————————————————————————————	<b>)</b> —77		200 Ω 750 Ω < 1 Ω	Wiring, ⇒ 19.0, S21/1

11.4 RH 23/5

$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
21.0	B1400	Left front power window motor (M10/3) activation from combination control module (N10-3)	N10-3 12 — ( — ) — 13	·	11 – 14 V –11 to –14 V	Wiring, ⇒ 20.0, N10-3
22.0	B1400	Left front power window motor (M10/3)	N10-3 4—( ——) )— 13 5—( ——) )— 12	Ignition: <b>OFF</b> See notes: 22/1  Disconnect connector A from combination control module (N10-3).  Bridge pin 4 with pin 13 using test cable 124 589 37 63 00	Window opens.	Wiring, M10/3
23.0		Ground connection for the right front power window switch (S21/2) from combination control module (N10-3)	N10-3 ∰ 77 — → → → 58	Ignition: <b>ON</b>	11 – 14 V	Wiring, Combination control module (N10-3).

11.4 RH

$\Rightarrow$		Test scope	Test con	nection		Test condition	Nominal value	Possible cause/Remedy
24.0	BIIZI	Right front power window switch (S21/2)	38 —	N10-3 ————————————————————————————————————	<b>&gt;</b> —77	Open	200 Ω 750 Ω	Wiring, ⇒ 23.0, S21/2
						Express down (one-touch automatic)	< 1 Ω	
25.0	B1401	Right front power window motor (M10/4) activation from combination control module (N10-3)	10 —	N10-3	<b>)</b> —11	Ignition: <b>ON</b> Press right front power window (S21/2) switch to:  Open  Close		Wiring, ⇒ 24.0, N10-3

$\Rightarrow$		Test scope	Test connection		Test condition	Nominal value	Possible cause/Remedy
26.0	B1401	Right front power window motor (M10/4)	N10-3 4—( ——)	<b>)</b> —11	Ignition: <b>OFF</b> See notes: 22/1	Window opens.	Wiring, M10/4
			5— <b>( -()</b> -	<b>&gt;</b> — 10	Disconnect connector A from combination control module (N10-3). Bridge pin 4 with pin 11 using test cable 124 589 37 63 00		
27.0	B1402	Left rear power window motor (M10/5) activation from combination control module (N10-3)	N10-3 	<b>)</b> — 17	Ignition: <b>ON</b> Press retractable hardtop switch (S84) to:     Open (towards back)  Close (towards front)		⇒ 28.0, N10-3

11.4 RH

$\Rightarrow$		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
28.0	81402	Left rear power window motor (M10/5)	N10-3 5— <b>(</b> —— <b>)</b> ——16	Ignition: <b>OFF</b> See Notes: 22/1	Window opens.	Wiring, M10/5
			4— <b>( -()</b> — <b>)</b> — 17	Disconnect connector A from combination control module (N10-3). Bridge pin 4 with pin 16 using test cable 124 589 37 63 00		
29.0	B1403	Right rear power window motor (M10/6) activation from combination control module (N10-3)	N10-3 ∭∭∭ 14 — ( → ( ) + ) — 15	Ignition: <b>ON</b> Press retractable hardtop switch (S84) to:  Open (towards back)  Close (towards front)		⇒ 30.0, N10-3

11.4 RH

$\Rightarrow$		Test scope	Test connection		Test condition	Nominal value	Possible cause/Remedy
30.0	B1403	Right rear power window motor (M10/6)	N10-3 (————————————————————————————————————	— 15	Ignition: <b>OFF</b> See notes: 22/1	Window opens.	Wiring, M10/6
			5— <b>(——)</b> — )-		Disconnect connector A from combination control module (N10-3) Bridge pin 4 with pin 15 using test cable 124 589 37 63 00		
31.0	B1492	Retractable hardtop solenoid valve (A7/5y1) activation from combination control module (N10-3)		— 24	Ignition: <b>ON</b> Press retractable hardtop switch (S84) to:  Open (towards back)  Close (towards front)		⇒ 17.0, ⇒ 32.0, Wiring, N10-3

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11.4 RH 23/10

$\Rightarrow$		Test scope	Test connection		Test condition	Nominal value	Possible cause/Remedy
31.1		Retractable hardtop solenoid valve (A7/5y1)		·	Ignition: <b>OFF</b> Disconnect connector A from combination control module (N10-3).	11 – 12.5 $\Omega$ at temp. 68°F (20°C). 16 – 17.5 $\Omega$ at temp. 250°F (120°C).	Wiring, A7/5y1
32.0	B1491	Trunk lid solenoid valve (A7/5y2) activation from combination control module (N10-3)	N10-3 <u>□</u> <u>□</u> <u>□</u> <u>□</u> <u>□</u> <u>□</u> <u>□</u> <u>□</u> <u>□</u> <u>□</u>	— 25	Ignition: <b>ON</b> Press retractable hardtop switch (S84) to:  Open (towards back)  Close (towards front)		⇒ 17.0, ⇒ 32.1, N10-3
32.1		Trunk lid solenoid valve (A7/5y2)		•	Ignition: <b>OFF</b> Disconnect connector A from combination control module (N10-3).	11 – 12.5 $\Omega$ at temp. 68°F (20°C). 16 – 17.5 $\Omega$ at temp. 250°F (120°C).	Wiring, A7/5y2
33.0	B1493	Gong in instrument cluster (A1) activation from combination control module (N10-3)	N10-3 21 — ( — V + )	<b>)</b> — 4	Drive with retractable hardtop unlocked > 3 mph (5 km/h)	11 – 14 V Gong sounds.	Wiring, Gong, N10-3

$\Rightarrow$		Test scope	Test connection		Test condition	Nominal value	Possible cause/Remedy
34.0	81268 81268	VSS signal status		<b>)</b> — 56	Ignition: <b>ON</b> Vehicle stationary.  Drive vehicle > 3 mph (5 km/h).	2.9 – 3.2 Hz 20 – 30 Hz	Wiring, ASR/SPS control module (N47-1).
35.0	B1267	Speed signal		N10-3 	0 mph  Drive vehicle: 20 mph (30 km/h) 35 mph (50 km/h)	200 Hz	Wiring. ASR/SPS control module (N47-1).

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### Operational sequence, opening hardtop

Limit switches engaged		Retractat	Retractable hardtop				Trunk lid		Rotary
1) corresponds to:	Voltage measurements at the socket box (V)	locked right	locked left	closed	open/ stored	open	closed/ locked	in trunk	closed
2) corresponds to:	Readouts on the HHT	S69/2	S69/3	S69/1	S69/11	S69/9	S69/7 S69/8	S69/10	S69/12
Connection Diagram – Socke ( 22)	et Box	⊥ 30	30	32	33	52	37	54	⊥ 69
Rest position, hardtop closed	d	1) 0–1 2) Yes	1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed
Side windows open, Trunk lid unlocked, open and Retractable hardtop unlocke		1) <b>11</b> – <b>14</b> 2) No	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) 0-1 2) Closed	1) 0–1 2) Closed
Retractable hardtop open/sto Front side windows open	ored,	1) <b>11–</b> <b>14</b> 2) No	1) <b>11–</b> <b>14</b> 2) No	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Closed	1) 0–1 2) Closed
Trunk lid closed and locked a Retractable hardtop locked	and	1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed
After locking, elapsed time te Rear side windows go down		1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed
Front side windows go up.		1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11– 14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed

## Operational sequence, closing hardtop

Limit switches engaged			Retractable hardtop			Trunk lid		Cover	Rotary
								in trunk	latch
1) corresponds to:	Voltage measurements (V) at the socket box	locked right	locked left	closed	open/ stored	open	closed/ locked	closed	closed
2) corresponds to:	Readouts on the HHT	S69/2	S69/3	S69/1	S69/11	S69/9	S69/7 S69/8	S69/10	S69/12
Connection Diagram – Sock ( 22)	et Box	30	30	32	⊥ 33	52	37	54	⊥ 69
Rest position, Hardtop open		1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0-1 2) Closed
Side windows open, Trunk lid unlocked, open and Retractable hardtop unlocke		1) <b>11</b> – <b>14</b> 2) No	1) <b>11–</b> <b>14</b> 2) No	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) No	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Closed	1) 0-1 2) Closed
Retractable hardtop closed, Open side windows		1) <b>11–</b> <b>14</b> 2) No	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Closed	1) 0–1 2) Closed
Trunk lid closed, locked and	hardtop locked	1) 0–1 2) Yes	1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed
After locking, time t=0.3 sec. Rear side windows go down		1) 0–1 2) Yes	1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11–</b> <b>14</b> 2) No	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed

## Operational sequence, closing hardtop

Limit switches engaged		Retracta	ble hardtop	)		Trunk lid		Cover	Rotary
								in trunk	latch
Only the second state of the second state	Voltage measurements (V) at the socket box	locked right	locked left	closed	open/ stored	open	closed/ locked	closed	closed
2) corresponds to:	Readouts on the HHT	S69/2	S69/3	S69/1	S69/11	S69/9	S69/7 S69/8	S69/10	S69/12
Rear side windows go up (o	close)	1) 0–1 2) Yes	1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11</b> – <b>14</b> 2) No	1) <b>11</b> – <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed
Side windows go up (close)		1) 0–1 2) Yes	1) 0–1 2) Yes	1) 0–1 2) Yes	1) <b>11– 14</b> 2) No	1) <b>11–</b> <b>14</b> 2) No	1) 0–1 2) Yes	1) 0–1 2) Closed	1) 0–1 2) Closed

## **Electrical Test Program – Survey of Side Windows Activation**

## Operational sequence, opening retractable hardtop

Limit switches engaged	Power window motors actuation.					
Voltage measurements at the socket box (V)     corresponds to: Readouts on the HHT	left front (M10/3)	right front (M10/4)	left rear (M10/5)	right rear (M10/6)		
Connection Diagram – Socket Box (22)	13 <del>- Û</del> 12	11 <del>- </del> 10	17 <del>- Û</del> + 16	15 <del>- Û +</del> 14		
Front side windows open, Rear side windows go down for time t=3 sec., Trunk lid unlocks, opens and, Hardtop unlocks	1) <b>-11 to -14 volts</b> 2) open	1) <b>-11 to -14 volt</b> s 2) open	1) <b>-11 to -14 volts</b> 2) open	1) <b>-11 to -14 volts</b> 2) open		
Retractable hardtop open (stored) Front side windows go down	1) <b>-11 to -14 volts</b> 2) open	1) <b>-11 to -14 volts</b> 2) open	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated		
Trunk lid closes, locks and Retractable hardtop locks	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated		
After locking, time t=2 sec Rear side windows go down for time t=2 sec	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated	1) <b>-11 to14 volts</b> 2) open	1) <b>-11 to -14 volts</b> 2) open		
Front side windows go up	1) <b>11 to 14 volts</b> 2) close	1) <b>11 to 14 volts</b> 2) close	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated		

## Operational sequence, closing retractable hardtop

Limit switches engaged	Power window motors actuation.					
Voltage measurements at the socket box (V)     corresponds to: Readouts on the HHT	left front (M10/3)	right front (M10/4)	left rear (M10/5)	right rear (M10/6)		
Connection Diagram – Socket Box ( 22)	13 <del>- ① +</del> 12	11 <del>- ① -</del> 10	17 <del>- ① -</del> 16	15 <del>-</del> 14		
Front side windows go down, Trunk lid unlocks, opens and, Hardtop unlocks	1) <b>-11 to -14 volts</b> 2) open	1) <b>-11 to -14 volts</b> 2) open	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated		
Retractable hardtop closes, Front side windows go down	1) <b>-11 to -14 volts</b> 2) open	1) <b>-11 to -14 volts</b> 2) open	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated		
Trunk lid closes, locks, and Hardtop locks	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) close	1) 0 - 1 V 2) close		
After locking time t=3 sec. Rear side windows go up	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated	1) <b>11 to 14 volts</b> 2) close	1) <b>11 to 14 volts</b> 2) close		
Front side windows go up	1) <b>11 to 14 volts</b> 2) close	1) <b>11 to 14 volts</b> 2) close	1) 0 - 1 V 2) not actuated	1) 0 - 1 V 2) not actuated		

## **Electrical Test Program – Survey of Electrical Valve Actuation**

### Operational sequence, retractable hardtop opening

Limit switches engaged	Hydraulic unit relay (A7/5k1)	Retractable hardtop solenoid valve (A7/5y1)	Trunk lid solenoid valve (A7/5y2)
Corresponds to: Voltage measurements (V) at the socket box			
2) corresponds to: Readouts on the HHT			
Connection Diagram – Socket Box ( 22)			
Front and rear side windows go down Trunk lid unlocks, opens and Retractable hardtop unlocks	1) <b>11 – 14 V</b>	1) <b>11 – 14 V</b>	1) <b>11 – 14 V</b>
	2) ON	2) ON	2) ON
Retractable hardtop opens Front side windows open	1) <b>11 – 14 V</b>	1) 0–1 V	1) <b>11 – 14 V</b>
	2) ON	2) OFF	2) ON
Trunk lid closes, locks and hardtop locks	1) <b>11 – 14 V</b>	1) 0–1 V	1) 0–1 V
	2) ON	2) OFF	2) OFF
After locking, time t=2 sec. Rear side windows go down for t=2 sec.	1) <b>11 – 14 V</b>	1) 0–1 V	1) 0–1 V
	2) ON	2) OFF	2) OFF
Front side windows go up	1) 0–1 V	1) 0–1 V	1) 0–1 V
	2) OFF	2) OFF	2) OFF

11.4 RH

## **Electrical Test Program – Survey of Electrical Valve Actuation**

## Operational sequence, retractable hardtop closing

Limit switches engaged	Hydraulic unit relay (A7/5k1)	Retractable hardtop solenoid valve (A7/5y1)	Trunk lid solenoid valve (A7/5y2)
Voltage measurements at the socket box (V)			
2) corresponds to: Readouts on the HHT			
Connection Diagram – Socket Box ( 22)			
Front and rear side windows go down Trunk lid unlocks, opens and Retractable hardtop unlocks	1) <b>11 – 14 V</b> 2) ON	1) 0–1 V 2) OFF	1) <b>11 – 14 V</b> 2) ON
Retractable hardtop opens Front side windows go down	1) <b>11 – 14 V</b>	1) <b>11 – 14 V</b>	1) <b>11 – 14 V</b>
	2) ON	2) ON	2) ON
Trunk lid closes, locks and hardtop locks	1) <b>11 – 14 V</b>	1) <b>11 – 14 V</b>	1) 0–1 V
	2) ON	2) ON	2) OFF
After locking, elapsed time t=3 sec. Rear side windows go up for time t=3 sec.	1) <b>11 – 14 V</b>	1) <b>11 – 14 V</b>	1) 0–1 V
	2) ON	2) ON	2) OFF
Rear side windows go up	1) 0–1 V	1) 0–1 V	1) 0–1 V
	2) OFF	2) OFF	2) OFF
Front side windows go up	1) 0–1 V	1) 0–1 V	1) 0–1 V
	2) OFF	2) OFF	2) OFF

## **Hydraulic Test Program – Component Locations**

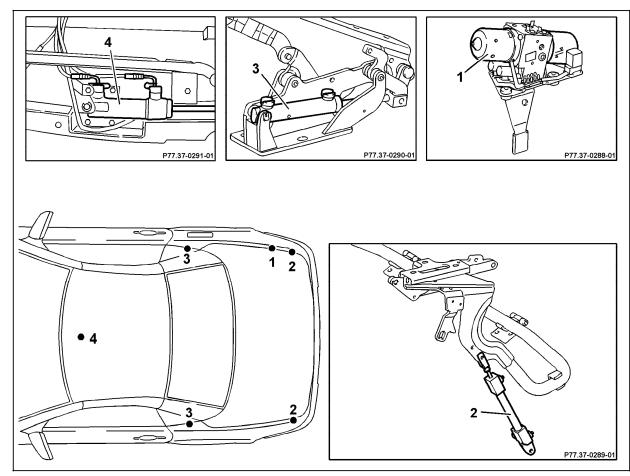


Figure 1

1 A7/5 Retractable hardtop hydraulic unit 2

Left/right trunk lid hydraulic cylinder

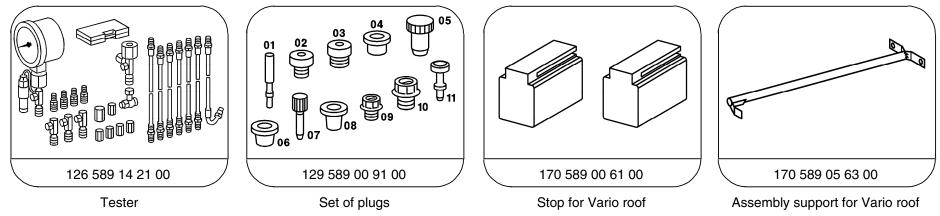
Left/right retractable hardtop actuation hydraulic cylinder 3

Front latch hydraulic cylinder

P77.37-0292-06

## **Hydraulic Test Program – Preparation for Test**

## **Special Tools**



### Conventional tools, test equipment

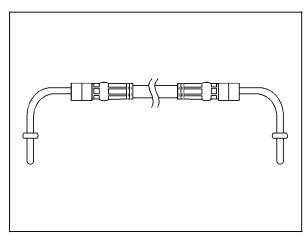
Description	Brand, model, etc.
Graduated beaker (0.5 liter, 10 ml graduations)	local purchase

# **Hydraulic Test Program**

### Hydraulic test line

Part number 129 806 34 83

Figure 2



P77.37-0317-01

### **Hydraulic Test Program – Preparation for Test**

### Risk of personal injury

Risk of personal injury (pinching/crushing) while working (loosening or removal) of pre-tensioned components. Use only approved special tools, tensioning devices, stops etc. in order to prevent serious injury. Visually inspect special tools for proper condition/function and possible damage prior to use. When using spring compressor tools, it is important that the spindle is not used in a damaged condition, that the threads are clean and proper. The spring plates are to be straight and not bent in any fashion. Note the assembly location of each spring plate and that the tightening nut threads are complatible and clean to the spindle. **Do not** use an impact tool to loosen or tighten the spring compressor tool nut. Wear safety gloves.

Risk of personal injury (pinching/crushing) while working on partially opened retractable hardtop. The **rest mode** is the interruption of the opening or closing sequence of the retractable hardtop, if the switch (S84) is released while being used to open or close the hardtop.

# i

The **rest mode** holds the partially opened or closed retractable hardtop in this position for 7 seconds, thereafter the system is de-pressurized and depending on the position, the hardtop will come to rest upon itself. The danger of personal injury (pinching/crushing) exists if the work that is being carried out without first using the special tools to safely support the hardtop. Please review and use the special tools as mentioned in 33

Risk of personal injury (pinching/crushing) and in extreme cases loss of limbs or fingers, while working with components that are actuated either by hand, electrically via motors, hydraulically or pneumatically via connecting mechanical components, by reaching into moving components or mechanical units.

It is important that limbs, fingers and body parts be kept away from the operating areas of the moving components, especially if the components are actuated via the HHT or directly via circuit 30. Ensure that the test cables are of proper length, to prevent entanglement.

Keep clear of the retractable hardtop frame and linkage, upper part of the winshield and trunk lid during any retractrable hardtop operation.

Before begining the test, check the oil level in the hydraulic unit reservoir and top up if needed (refer to the Maintenance Manual).

In order to make accurate visual inspection for oil loss from the hydraulic system, the trim panels covering the hydraulic components must be removed.

The front latch can be locked or unlocked using the special tool provided with the vehicle for manual hardtop operation. The trunk can be unlocked using pull cables (refer to Owners Manual).

The hydraulic circuits and components for each operation of the hardtop can be tested separately.

Lastly, it is important to wear safety gloves when performing the tests.

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11.4 RH 33/4

#### **Notes for Hydraulic Test:**

#### The following jobs are the same for all test steps:

- A. Connection of test equipment to hydraulic unit (Figure 3).
- B. Test the hydraulic cylinders only at the piston's end position (prevents movement).
- C. If the hydraulic lines need to be disconnected during pressure tests, the appropriate end position of the hydraulic cylinder must be first ensured.
- D. All necessary hardtop positions can be achieved by pressing the retractable hardtop switch (S84) or by pulling the hardtop manually (Ignition: OFF).

in order to move the retractable hardtop manually, the emergency operation relief valve on the hydraulic unit must be open all the way to a stop position using the allen wrench provided with the vehicle, refer to "N" in Figure 3). The emergency operation relief valve must be then closed (tightening torque approx.: 3 Nm).



The emergency operation relief valve can only be open with retractable hardtop closed or in open/stored position and with the ignition switch in OFF. If this is not adhered to, the seal on the valve could be damaged, which would in turn hinder building up the operating pressure in the hydraulic system.



The hydraulic cylinders (3 and 4, Figure 8) will lose all the pressure during manual movement of the retractable hardtop. If the hardtop is in the closed position, the retractable hardtop switch (S84) must be pressed toward front (close) for 5 sec. in order to build up the pressure in the cylinders again.

If the hydraulic cylinders are without hydraulic pressure and the retractable hardtop switch (S84) is pressed towards back (open position), the retractable hardtop will open rapidly. This could cause damage to the hardtop itself and to the components in the trunk/storage area.

#### Releasing the test pressure.

If the retractable hardtop comes to the end position (open/stored or closed) by pressing the retractable hardtop switch, the hydraulic pressure must be released from the system before disconnecting any hydraulic lines. To achieve that, the ignition switch must be in the OFF position and the relief valve on the hydraulic unit ("N", Figure 3) must be open all the way to the stop position. The pressure should drop in a short time, as observed on the pressure gauge. Place a shop towel around the hydraulic lines to be disconnected to avoid hydraulic oil spills when removing hydraulic lines. Additionally the ports must be plugged off using the necessary plug. The removed hydraulic lines should be placed in a container as well.

i For plugging the entry ports on the hydraulic unit during the pressure tests, the plugs - part number 129 589 00 91 01 must be used.

To use the pressure gauge after setting the hardtop to the desired position at the test steps  $\Rightarrow$  2.0, 3.0, 5.0, 5.1, 5.2, 7.0, 7.1, 8.0, 8.1, 8.2, 8.3, 8.4, the trunk lid must be open via turnk lid lock and the rotary latch moved (using a small screwdriver) to a **locked** position. Before closing the lid, the rotary latch **open** position must be restored by pressing the lock button.

If hydraulic components need to be replaced, the disconnected hydraulic lines must be plugged with plug 129 589 00 91 07, while the ports on hydraulic unit must be plugged **immediately** using plug 129 589 00 91 11 to prevent the possible entry of dirt.

**Connection Diagram - Pressure Gauge to Hydraulic Unit** 

Figure 3

Adaptor kit 126 589 14 21 00

1 Test pressure line M8x1 - M10x1, 350 mm long

2 Joint coupling connector

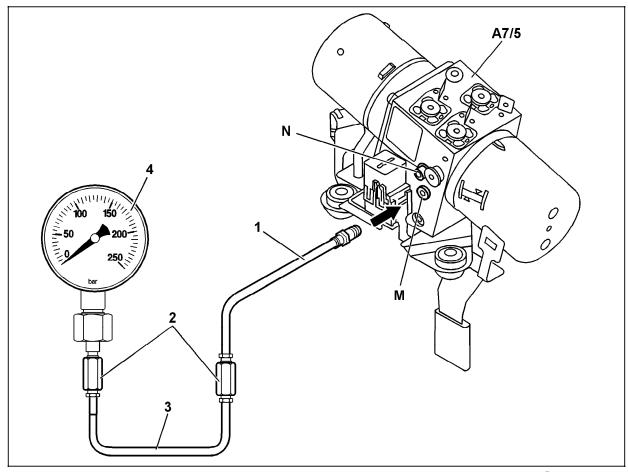
3 Test pressure line M8x1 - M10x1, 3000 mm long

4 Pressure gauge

A7/5 Retractable hardtop hydraulic unit

M Testing port

N Emergency operation relief valve



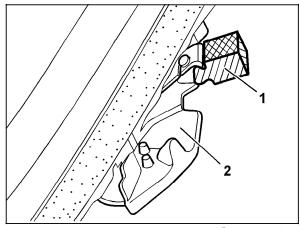
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#### Use of retainer

- 1 Place retainer (1) into catch (2) of the front lock.
- 2 Move retractable hardtop all the way until it is blocked by the retainer (1).
- 3 Carry out test step.

#### Figure 4

- 1 Retainer 170 589 00 61 00
- 2 Catch



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33/7

#### Latches for tubular frames in trunk

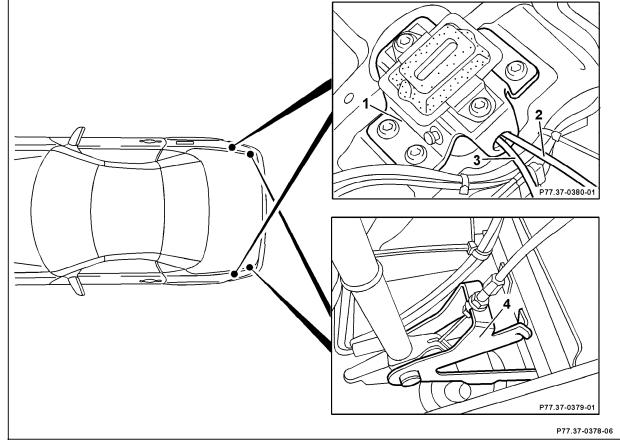


Figure 5

- 1 Tubular frame latch
- 2 Pull cable for emergency opening
- 3 Bowden cable for latch unlocking via hydraulic cylinder
- 4 Connection between hydraulic cylinder and bowden cable in the console

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### Locking on the C-pillar

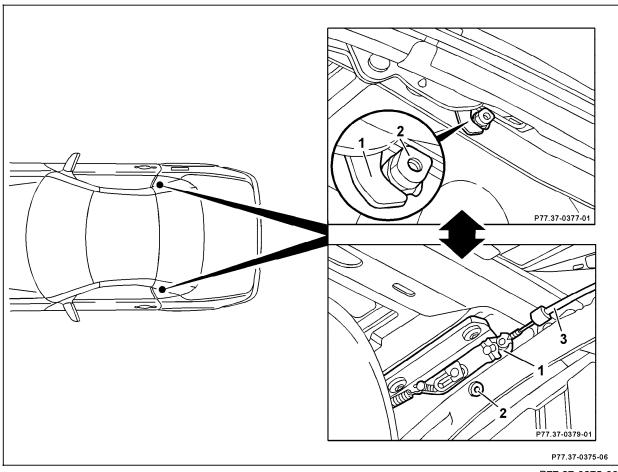
View as seen from inside and from outside

Figure 6

1 Slide

2 Eccentric catch

3 Bowden cable



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**Connection diagram of Retractable Hardtop** (RH) hydraulic cylinders

**Retractable Hardtop** 

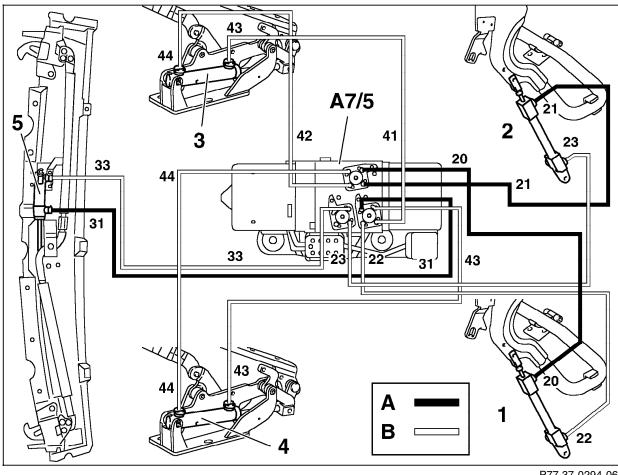


Left/right trunk lid actuation hydraulic cylinder 1/2 Left/right retractable hardtop actuation hydraulic cylinder 3/4 Front hydraulic cylinder lock 5

Hydraulic unit A7/5

Retractable hardtop hydraulic circuit

В Control pressure line



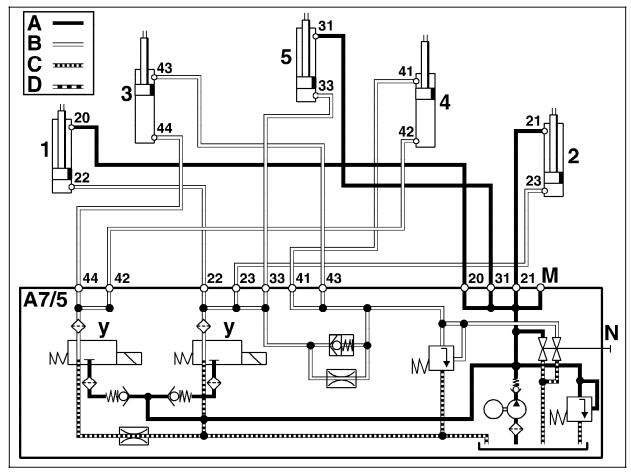
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Hydraulic circuit with hydraulic cylinders shown

(Retractable Hardtop closed)

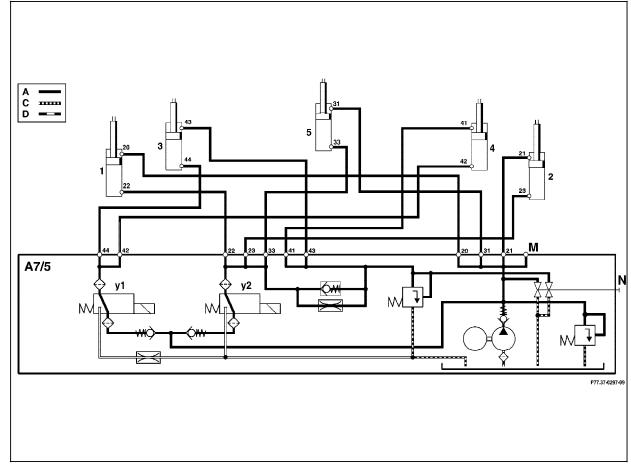
#### Figure 8

1/2 Left/right trunk lid actuation hydraulic cylinder 3/4 Left/right retractable hardtop actuation hydraulic cylinder 5 Front hydraulic lock cylinder A7/5 Hydraulic unit Retractable hardtop solenoid valve y1 y2 Trunk lid solenoid valve Α Retractable hardtop hydraulic circuit В Control pressure line С Return line D



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Suction line



### Figure 9

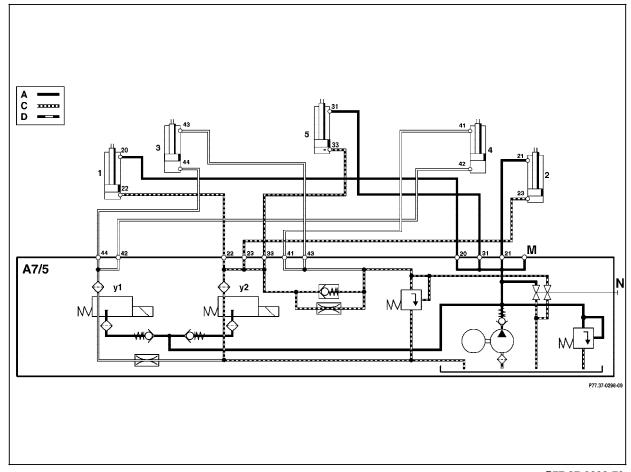
A7/5 Hydraulic unit 1 Left trunk lid hydraulic cylinder 2 Right trunk lid hydraulic cylinder 3 Retractable hardtop, left actuation hydraulic cylinder 4 Retractable hardtop, right actuation hydraulic cylinder 5 Front hydraulic lock cylinder Retractable hardtop hydraulic circuit Α С Return line D Suction line Μ Test (measuring) connection Emergency operation relief valve Ν y1 Retractable hardtop solenoid valve y2 Trunk lid solenoid valve

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$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	Checking retractable hardtop hydraulic unit (A7/5) (Figure 9)	Connect pressure gauge according to connection diagram (Figure 3).	Starting point: Retractable hardtop rests on the front latches, trunk lid pivoted		Check emergency operation relief valve (N)  Tightening torque: 3 Nm
		Block retractable hardtop at the front latch with the retainer (part number 170 589 00 61 00). Refer to	Ignition: ON Press and hold retractable		<180 bar: Replace retractable hardtop hydraulic unit (A7/5).
		Figure 4 - Use of retainer.	hardtop switch (S84) for 5 sec. in close position (towards front).		Nominal value O. K. ⇒ 2.0
			Read test pressure:	180 – 200 bar	

# Figure 10

A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
y2	Trunk lid solenoid valve



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$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.0	Hydraulic circuit pressure test (Figure 10)		Starting point: Retractable hardtop completely open. Trunk lid open, rotary latch on trunk lid lock locked.  Disconnect connector A on combination control module N10-3. Bridge + terminal and pin 22 on the control module connector with test cable 124 589 37 63 00 Set the bridge for 5 sec.  Read test pressure while the retractable hardtop hydraulic unit runs.	180 – 200 bar	< 180 bar: ⇒ 4.0. Nominal values O. K.: ⇒ 3.0.

Figure 11

A7/5 Hydraulic unit
1 Left trunk lid hydraulic cylinder

Left trunk lid hydraulic cylinder
 Right trunk lid hydraulic cylinder

3 Retractable hardtop, left actuation hydraulic cylinder 4 Retractable hardtop, right actuation hydraulic cylinder

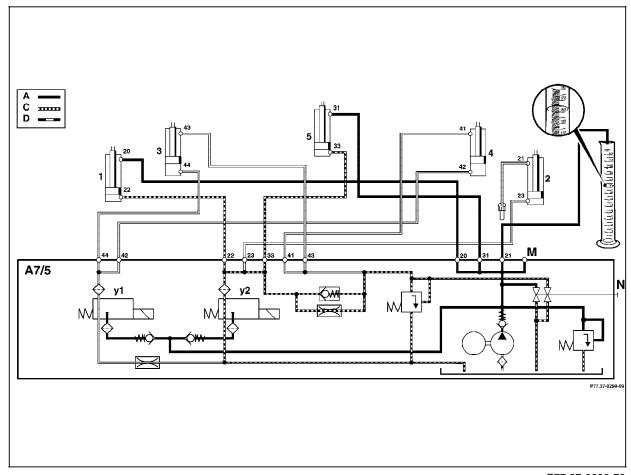
5 Front hydraulic lock cylinder

A Retractable hardtop hydraulic circuit

C Return line D Suction line

M Test (measuring) connection
N Emergency operation relief valve
y1 Retractable hardtop solenoid valve

y2 Trunk lid solenoid valve



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$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0	Checking fluid volume output of hydraulic unit (A7/5) (Figure 11)  i  Room temperature not to be <70° F (18° C).	Disconnect hydraulic line number 21 from hydraulic unit. Seal connection with plug 129 589 00 91 07.  Connect test line part number 129 806 34 83 to the output port of line number 21 on the hydraulic unit and insert that hydraulic line into a graduated beaker.	Starting point: Retractable hardtop completely open, trunk lid open, rotary latch on the trunk lid lock locked  Ignition: ON Press and hold retractable hardtop switch in open position for 15 sec.  Read and note hydraulic fluid volume output in graduated beaker:	>0.10 liter (100 ml).	<0.10 liter Replace retractable hardtop hydraulic unit (A7/5).

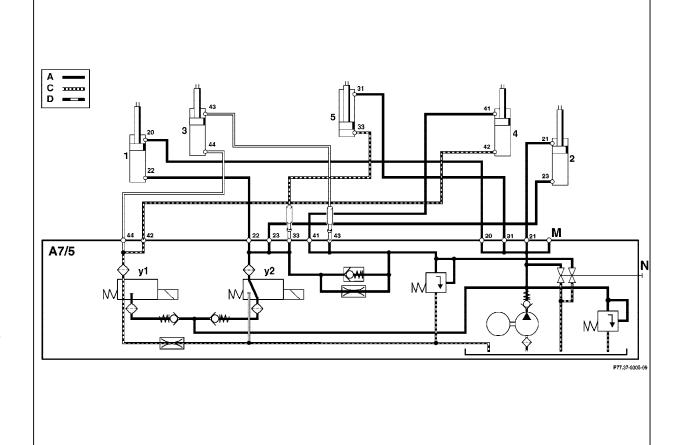


Figure 12

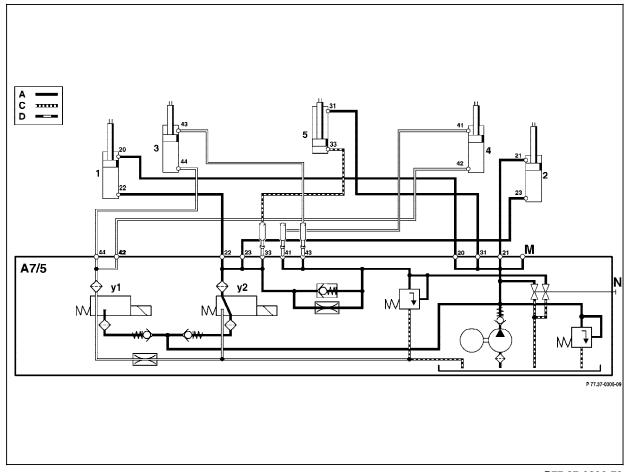
A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
v2	Trunk lid solenoid valve

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⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.0	Checking retractable hardtop movement hydraulic cylinder (pushing rod side) (3, Figure 12)  Complaint: Retractable hardtop does not open or opens slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic lines numbers 33 and 43 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Release hydraulic working pressure (refer to "Notes for Hydraulic Test")  N10-3  The connection with plug 129 589 00 91 01.  N10-3  The connection with plug 129 589 00 91 01.	Movement sequence: Retractable hardtop opens  Starting point: Retractable hardtop closed, front latch locked (using allen wrench), trunk lid pivoted towards rear.  Disconnect connector A on combination control module N10-3. Bridge the control module connector with test cable 124 589 37 63 00 as shown Set bridge for 5 seconds.  Read test pressure while the retractable hardtop hydraulic unit runs	180 – 200 bar	Nominal values O.K: Retractable hardtop actuation hydraulic cylinder (3, Figure 12) leaking. Replace hydraulic cylinder. <180 bar: ⇒ 4.1

# Figure 13

A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
y2	Trunk lid solenoid valve

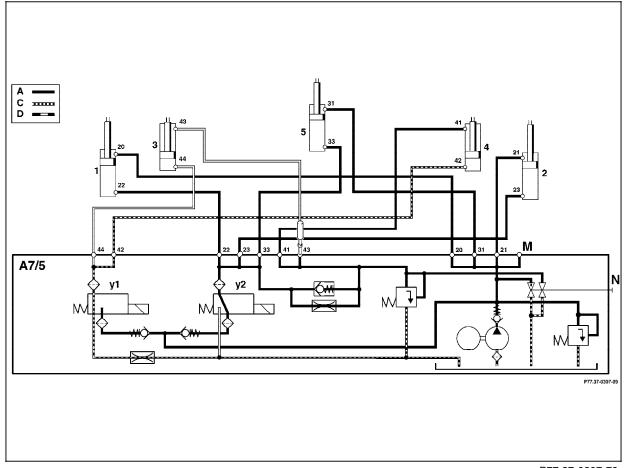


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$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.1	Checking retractable hardtop actuation hydraulic cylinder (pushing rod side) (4, Figure 13)  Complaint: Retractable hardtop does not open or opens slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 41 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Leave hydraulic lines 33 and 43 disconnected.  N10-3	Retractable hardtop closed, front latch locked, trunk lid pivoted towards rear  Disconnect connector A on combination control module N10-3. Bridge the control module connector with test cable 124 589 37 63 00 as shown Set the bridge for 5 sec.  Read test pressure while the retractable hardtop hydraulic unit runs	180 – 200 bar	Nominal values O.K: Retractable hardtop actuation hydraulic cylinder (4, Figure 13) leaking. Replace hydraulic cylinder.  <180 bar: ⇒ 1.0  If the retractable hardtop does not open, check the locking devices on C-pillars for proper function see Figure 6.  For adjustment instructions refer to job number: AR77.33-3470G

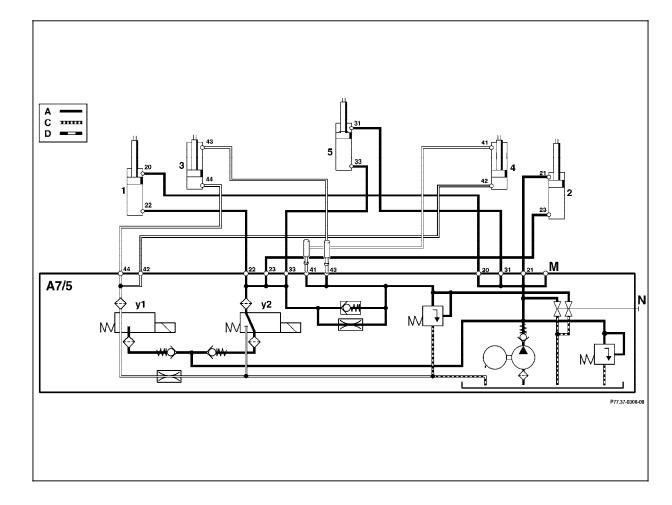
# Figure 14

A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
y2	Trunk lid solenoid valve



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$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.2	Checking retractable hardtop movement hydraulic cylinder (pushing rod side) (3, Figure 14)  Complaint: Trunk lid does not close or closes slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 43 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  N10-3  **THE PROPERTY OF THE PROPERT	Movement sequence: Retractable hardtop closes.  Starting point: Retractable hardtop front latch open, trunk lid pivoted to rear, retractable hardtop open  Disconnect connector A on combination control module N10-3. Bridge the control module connector with test cable 124 589 37 63 00 as shown Set the bridge for 5 sec.  Read test pressure while the retractable hardtop hydraulic unit runs	180 – 200 bar	Nominal values O. K.: Retractable hardtop actuation hydraulic cylinder (3, Figure 14) leaking. Replace hydraulic cylinder. <180 bar: ⇒ 4.3



#### Figure 15

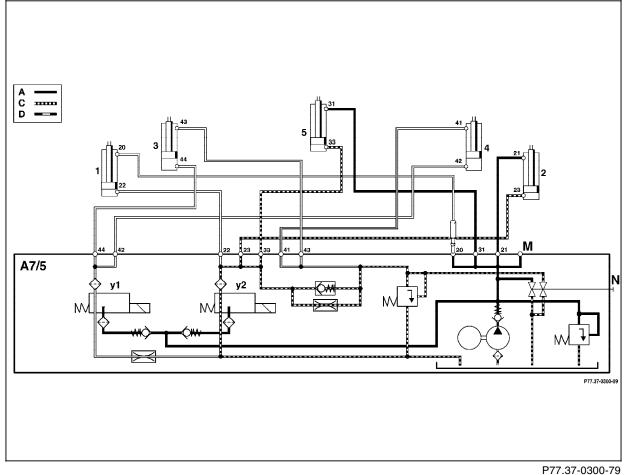
A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
v2	Trunk lid solenoid valve

P77.37-0308-79

$\Rightarrow$	°	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.3		Checking retractable hardtop actuation hydraulic cylinder (pushing rod side) (4, Figure 15)  Complaint: Trunk lid does not close or closes slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 41 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Leave hydraulic line number 43 disconnected.  N10-3  ***  ***  ***  ***  ***  ***  ***	Retractable hard top front latch open, trunk lid pivoted to rear, retractable hard top open  Disconnect connector A on combination control module N10-3. Bridge the control module connector with test cable 124 589 37 63 00 as shown Set the bridge for 5 sec.  Read test pressure while the retractable hardtop hydraulic unit runs	180 – 200 bar	Nominal values O. K.: Retractable hardtop actuation hydraulic cylinder (4, Figure 15) leaking. Replace hydraulic cylinder.  <180 bar: ⇒ 1.0  If the trunk lid does not open, check the latches for tubular frames in the trunk (Figure 5).  Check adjustment of the bowden cables, for adjustment instructions refer to job number: AR77.33-3470G

## Figure 16

A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
v2	Trunk lid solenoid valve



$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.0	Checking trunk lid actuation hydraulic cylinder (pushing rod side) (1, Figure 16)  Complaint: Trunk lid does not close or closes slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 20 from hydraulic unit. Seal connection with plug 129 589 00 91 01.	Starting point: Retractable hardtop fully open, trunk lid open, rotary latch on trunk lid lock locked.  Ignition: ON Press retractable hardtop switch (S84) to open position for 5 sec.  Read test pressure while depressing the switch	180 – 200 bar	Nominal values O. K.:  Trunk lid actuating hydraulic cylinder (1, Figure 16) leaking.  Replace hydraulic cylinder.  <180 bar:  ⇒ 5.1

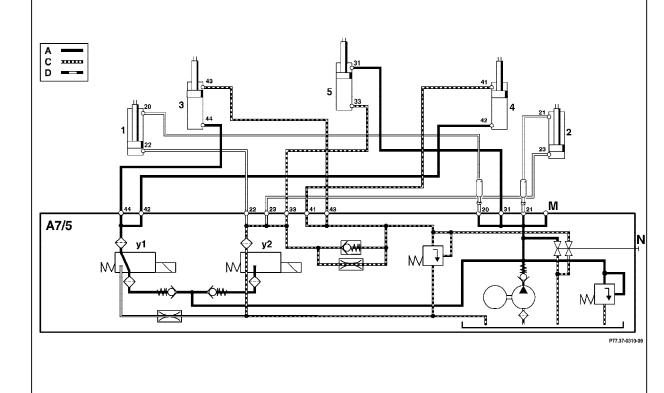


Figure 17

A7/5 Hydraulic unit 1 Left trunk lid hydraulic cylinder 2 Right trunk lid hydraulic cylinder 3 Retractable hardtop, left actuation hydraulic cylinder 4 Retractable hardtop, right actuation hydraulic cylinder 5 Front hydraulic lock cylinder Retractable hardtop hydraulic circuit Α С Return line D Suction line Test (measuring) connection М Ν Emergency operation relief valve Retractable hardtop solenoid valve y1 Trunk lid solenoid valve y2

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$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.1	Checking trunk lid actuation hydraulic cylinder (pushing rod side) (2, Figure 17)	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line	Retractable hardtop fully open, trunk lid fully open, rotary latch on trunk lid lock locked.		Nominal values O. K.: Trunk lid actuation hydraulic cylinder (2, Figure 17) leaking. Replace hydraulic cylinder.
	Complaint: Trunk lid does not close or closes slowly.	number 21 from hydraulic unit. Seal connection with plug 129 589 00 91 01.	Ignition: <b>ON</b> Press retractable hardtop switch (S84) to open position for 5 sec.		< <b>180 bar</b> : ⇒ 6.0
		Leave hydraulic line number 20 disconnected.	Read test pressure while depressing the switch	180 – 200 bar	

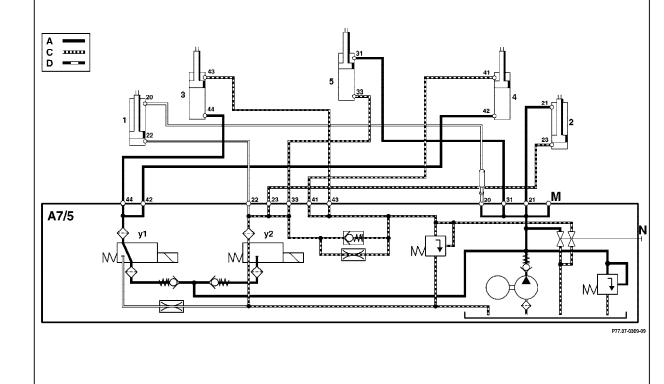


Figure 18

A7/5 Hydraulic unit Left trunk lid hydraulic cylinder 1 2 Right trunk lid hydraulic cylinder 3 Retractable hardtop, left actuation hydraulic cylinder Retractable hardtop, right actuation hydraulic cylinder 4 5 Front hydraulic lock cylinder Α Retractable hardtop hydraulic circuit С Return line D Suction line М Test (measuring) connection Ν Emergency operation relief valve y1 Retractable hardtop solenoid valve Trunk lid solenoid valve y2

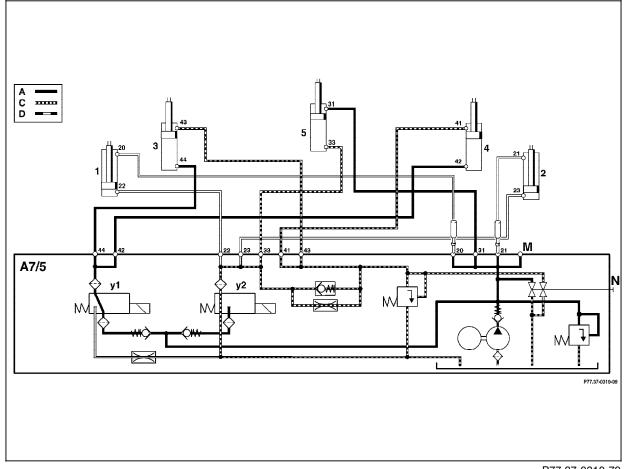
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Figure 18

$\Rightarrow$	•	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.2		Checking trunk lid actuation hydraulic cylinder (pushing rod side) (1, Figure 18)  Complaint: Front latch does not lock.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 20 from hydraulic unit. Seal connection with plug 129 589 00 91 01.	Starting point: Retractable hardtop closed, front latch open, trunk lid locked into latches within trunk, trunk lid open, rotary latch on trunk lid lock locked.		Nominal values O. K.:  Trunk lid actuation hydraulic cylinder (1, Figure 18) leaking.  Replace hydraulic cylinder.  <180 bar:  ⇒ 5.3
				Ignition: ON Press retractable hardtop switch (S84) to close position for 5 sec.  Read test pressure while depressing the switch	180 – 200 bar	

#### Figure 19

A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
y2	Trunk lid solenoid valve

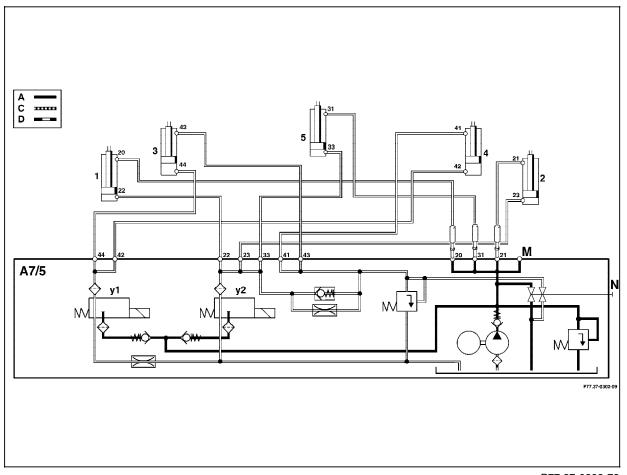


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$\Rightarrow$	° III	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.3		Checking trunk lid actuation hydraulic cylinder (pushing rod side) (2, Figure 19)  Complaint: Front latch does not lock.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 21 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Leave hydraulic line number 20 disconnected.	Retractable hardtop closed, front latch open, trunk lid locked into latches within trunk, trunk lid open, rotary latch on trunk lid lock locked.  Ignition: ON Press retractable hardtop switch (S84) to close position for 5 sec.  Read test pressure while depressing the switch	180 – 200 bar	Nominal values O. K.:  Trunk lid actuation hydraulic cylinder (2, Figure 19) leaking.  Replace hydraulic cylinder.  <180 bar:  ⇒ 7.0

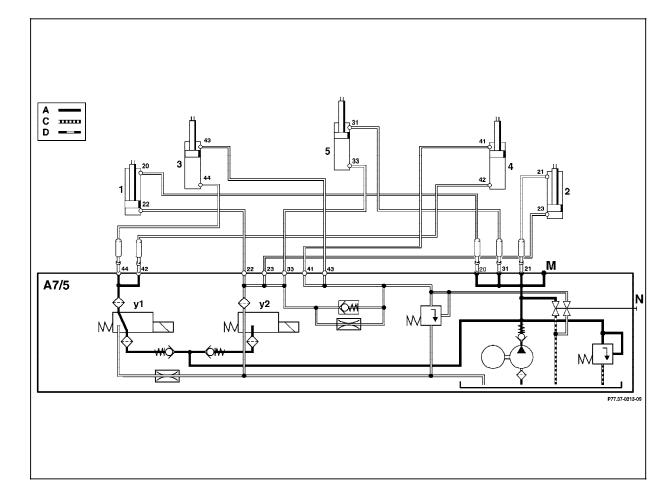
# Figure 20

A7/5	Hydraulic unit
A7/5	,
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
y2	Trunk lid solenoid valve



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$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.0	Checking front hydraulic lock cylinder (pushing rod side) (5, Figure 20)  Complaint: Trunk lid does not close or closes slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 31 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Leave the hydraulic lines numbers 20 and 21 disconnected.	Retractable hardtop fully open, trunk lid open rotary latch on the trunk lid lock locked.  Ignition: ON Press retractable hardtop switch (S84) to open position for 5 sec.  Read test pressure while depressing the switch.	180 – 200 bar	Nominal values O. K.: Front hydraulic lock cylinder (5, Figure 20) leaking. Replace hydraulic cylinder. <180 bar: ⇒ 1.0



#### Figure 21

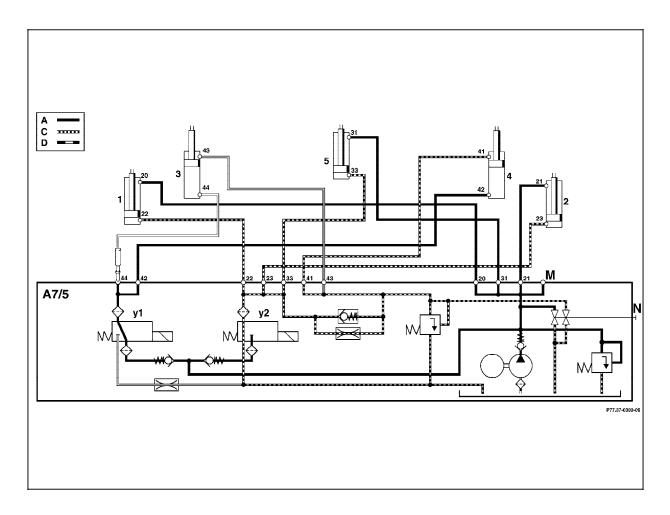
A7/5 Hydraulic unit 1 Left trunk lid hydraulic cylinder 2 Right trunk lid hydraulic cylinder 3 Retractable hardtop, left actuation hydraulic cylinder 4 Retractable hardtop, right actuation hydraulic cylinder 5 Front hydraulic lock cylinder Retractable hardtop hydraulic circuit Α С Return line D Suction line Μ Test (measuring) connection Emergency operation relief valve Ν y1 Retractable hardtop solenoid valve y2 Trunk lid solenoid valve

P77.37-0313-79

$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.1	Checking front hydraulic lock cylinder ( <b>pushing rod side</b> ) (5, Figure 21)	Connect pressure gauge according to connection diagram (Figure 3).	Retractable hardtop closed, front lock open, trunk lid locked into its latches in the trunk,		Nominal values O. K.: Front hydraulic lock cylinder (5, Figure 21) leaking. Replace hydraulic cylinder.
	Complaint: Front latch lock does not lock.	Disconnect hydraulic line number 31 from hydraulic unit. Seal connection with plug 129 589 00 91 01.	trunk lid open, rotary latch in trunk lid lock locked.  Ignition: ON		< <b>180 bar</b> : ⇒ 1.0
		Leave the hydraulic lines numbers 20 , 21, 42 and 44 disconnected.	Press retractable hardtop switch (S84) to close position for 5 sec.		
			Read test pressure while depressing the switch	180 – 200 bar	

#### Figure 22

A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
v2	Trunk lid solenoid valve

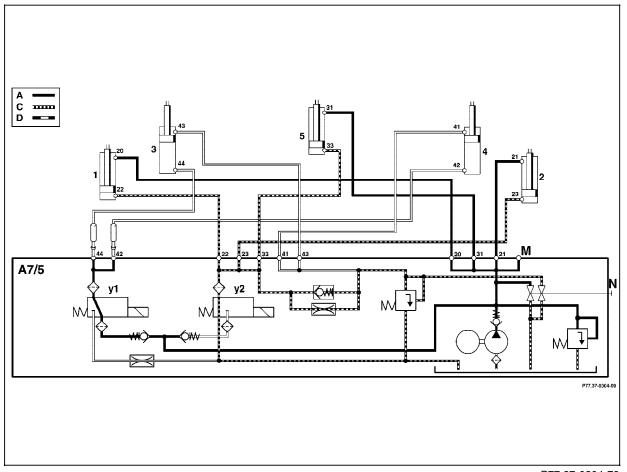


P77.37-0303-79

$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.0	Checking retractable hardtop actuation hydraulic cylinder (piston side) (3, Figure 22)  Complaint: Trunk lid does not close or closes slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 44 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  N10-3  THE HOLD TO SEAL THE PROPERTY OF THE PROPERTY	Starting point: Retractable hardtop fully closed, trunk lid open, rotary latch in trunk lid lock locked.  Disconnect connector A on combination control module N10-3. Bridge the control module connector with test cable 124 589 37 63 00 as shown. Set the bridge for 5 sec.  Read test pressure while the retractable hardtop hydraulic unit runs	180 – 200 bar	Nominal values O. K.: Retractable hardtop actuation hydraulic cylinder (3, Figure 22) leaking. Replace hydraulic cylinder. <180 bar: ⇒ 7.1

## Figure 23

A7/5	Hydraulic unit
1	Left trunk lid hydraulic cylinder
2	Right trunk lid hydraulic cylinder
3	Retractable hardtop, left actuation hydraulic cylinder
4	Retractable hardtop, right actuation hydraulic cylinder
5	Front hydraulic lock cylinder
Α	Retractable hardtop hydraulic circuit
С	Return line
D	Suction line
M	Test (measuring) connection
N	Emergency operation relief valve
y1	Retractable hardtop solenoid valve
y2	Trunk lid solenoid valve



P77.37-0304-79

$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.1	Checking retractable hardtop actuation hydraulic cylinder (piston side) (4, Figure 23)  Complaint: Trunk lid does not close or closes slowly.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 42 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Leave hydraulic line number 44 disconnected.	Retractable hardtop fully closed, trunk lid open, rotary latch on trunk lid lock locked.  Disconnect connector A on combination control module N10-3. Bridge the control module connector with test cable 124 589 37 63 00 as shown. Set the bridge for 5 sec.  Read test pressure while the retractable hardtop hydraulic unit runs	180 – 200 bar	Nominal values O. K.: Retractable hardtop actuation hydraulic cylinder (4, Figure 23) leaking. Replace hydraulic cylinder. <180 bar: ⇒ 5.0

# 4 Hydraulic unit Left trunk lid hydraulic cylinder

Left trunk lid hydraulic cylinder
 Right trunk lid hydraulic cylinder
 Retractable hardtop, left actuation hydraulic

Retractable hardtop, left actuation hydraulic cylinder
 Retractable hardtop, right actuation hydraulic cylinder

5 Front hydraulic lock cylinder

A Retractable hardtop hydraulic circuit

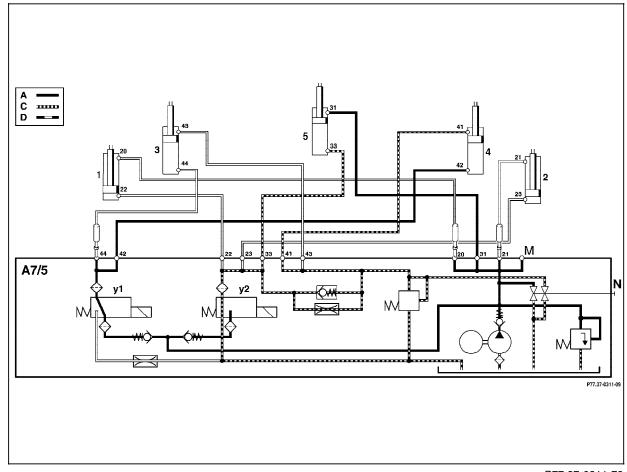
C Return line D Suction line

Figure 24

A7/5

M Test (measuring) connection
N Emergency operation relief valve
y1 Retractable hardtop solenoid valve

y2 Trunk lid solenoid valve



P77.37-0311-79

$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.2	Checking retractable hardtop actuation hydraulic cylinder (piston side) (3, Figure 24)  Complaint: Front latch lock does not lock.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 44 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Leave hydraulic lines numbers 20 and 21 disconnected.	Retractable hardtop closed, front latch lock open, trunk lid locked into its latches in the trunk, trunk lid open, rotary latch on trunk lid lock locked.  Ignition: ON Press retractable hardtop switch (S84) to close position for 5 sec.  Read test pressure while depressing the switch	180 – 200 bar	Nominal values O. K.: Retractable hardtop actuation hydraulic cylinder (3, Figure 24) leaking. Replace hydraulic cylinder. <180 bar: ⇒ 7.3

Figure 25

Hydraulic unit

Return line

Suction line

Left trunk lid hydraulic cylinder

Front hydraulic lock cylinder Retractable hardtop hydraulic circuit

Test (measuring) connection

Trunk lid solenoid valve

Emergency operation relief valve

Retractable hardtop solenoid valve

Right trunk lid hydraulic cylinder

A7/5

1

2

3

4

5

Α С

D

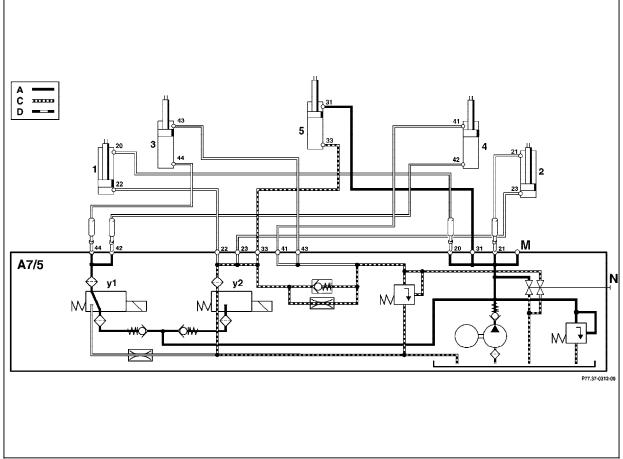
Μ

Ν

y1

y2

# A7/5 Retractable hardtop, left actuation hydraulic cylinder Retractable hardtop, right actuation hydraulic cylinder



P77.37-0312-79

$\Rightarrow$	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.3	Checking retractable hardtop actuation hydraulic cylinder (piston side) (4, Figure 25)  Complaint: Front latch lock does not lock.	Connect pressure gauge according to connection diagram (Figure 3).  Disconnect hydraulic line number 42 from hydraulic unit. Seal connection with plug 129 589 00 91 01.  Leave hydraulic lines numbers 20, 21 and 44 disconnected.	Retractable hardtop closed, front latch lock open, trunk lid locked into its latches in the trunk, trunk lid open, rotary latch on trunk lid lock locked.  Ignition: ON Press retractable hardtop switch (S84) to close position for 5 sec.		Nominal values O. K.: Retractable hardtop actuation hydraulic cylinder (4, Figure 25) leaking. Replace hydraulic cylinder. <180 bar: ⇒ 6.0
			Read test pressure while depressing the switch	180 – 200 bar	