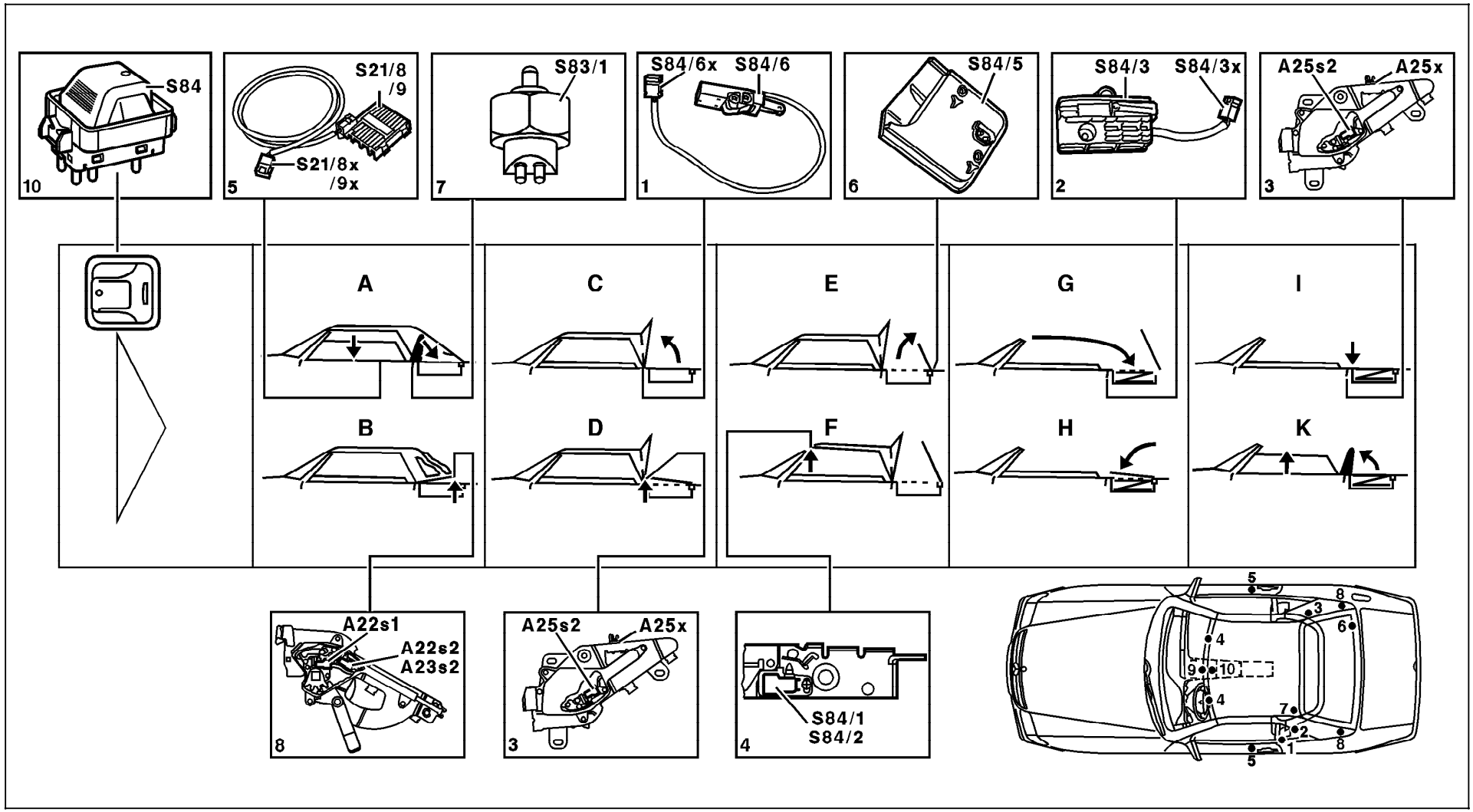
11.1 Model 124

	Page
Diagnosis	
Function Test	11/1
Diagnostic Trouble Code (DTC) Memory	12/1
Complaint Related Diagnostic Chart	13/1
Electrical Test Program	
Component Locations	21/1
Preparation for Test	22/1
Test	23/1
Survey of Electrical Limit Switch Signals	24/1
Survey of Electrical Valve Actuation	25/1
Hydraulic Test Program	
Component Locations	31/1
Preparation for Test	32/1
Test	33/1

Note:
The diagnosis of roll bar deployment in an accident is described in Diagnostic Manual, Body and Accessories, Volume 3, Chapter 19.1.



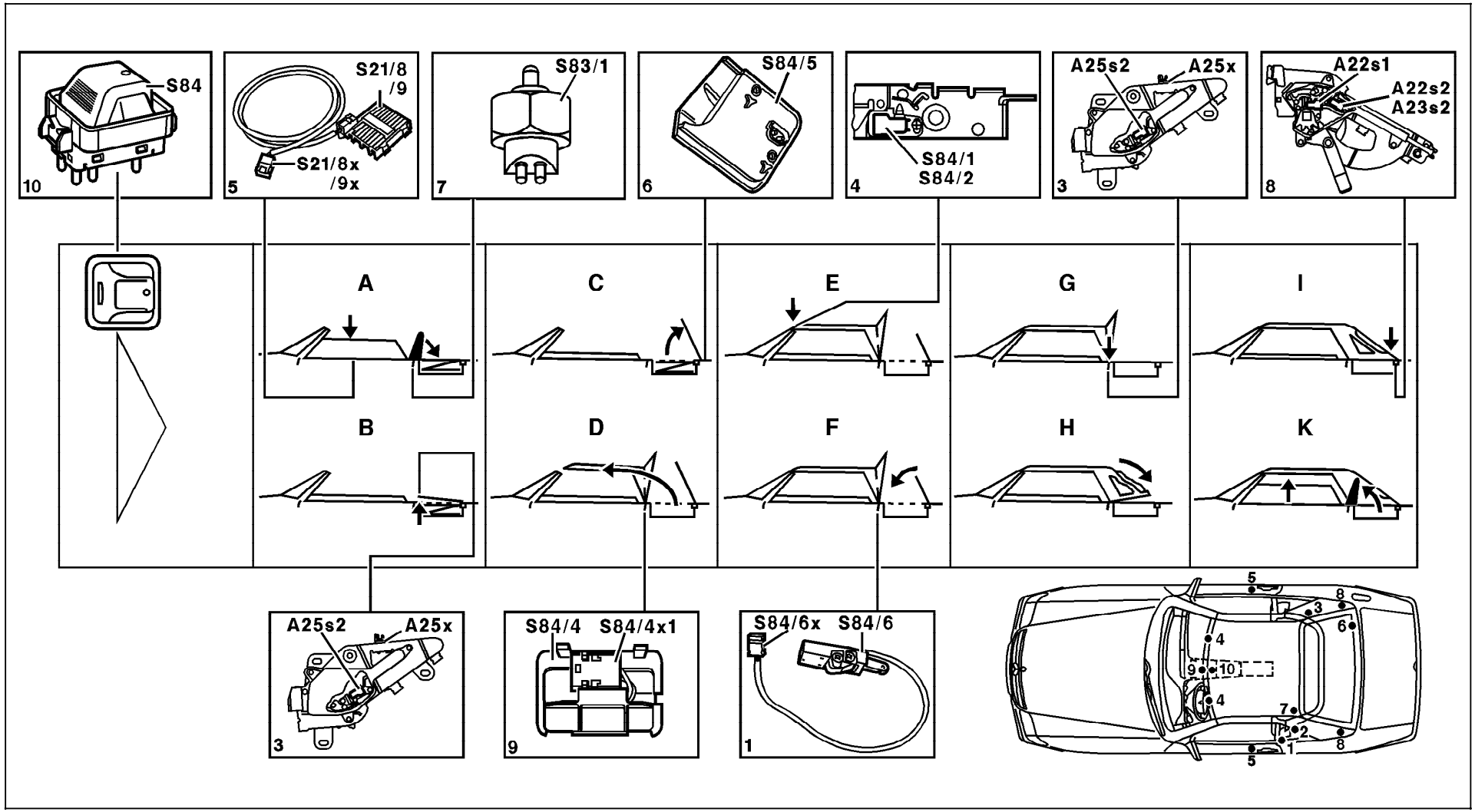
P77.39-0255-09

Diagnosis – Function Test

Soft top opening sequence

Figure 1

A25/1	Soft top compartment cover switch group
A25/1s1 (3)	Cover “closed” switch
A25/1s2 (3)	Cover “locked” switch
S83/5 (7)	RB “retracted” switch
S83/6 (8)	RB “extended” switch
S84 (10)	Power soft top switch
S84/1 (4)	Left front soft top “locked” switch
S84/2 (4)	Right front soft top “locked” switch
S84/3 (2)	Soft top “open” switch (soft top in storage compartment)
S84/4 (2)	Soft top “overhead” switch
S84/5 (6)	Soft top compartment “open” switch
S84/6 (1)	Soft top fabric bow “raised” switch
S84/7 (2)	Soft top fabric bow “down” switch
S84/8 (5)	Soft top fabric bow “locked” switch



P77.39-0256-09

Diagnosis – Function Test

Soft top closing sequence

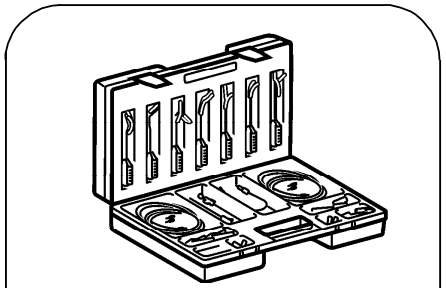
Figure 2

A25/1	Soft top compartment cover switch group
A25/1s1 (3)	Cover “closed” switch
A25/1s2 (3)	Cover “locked” switch
S83/5 (7)	RB “retracted” switch
S83/6 (8)	RB “extended” switch
S84 (10)	Power soft top switch
S84/1 (4)	Left front soft top “locked” switch
S84/2 (4)	Right front soft top “locked” switch
S84/3 (2)	Soft top “open” switch (soft top in storage compartment)
S84/4 (2)	Soft top “overhead” switch
S84/5 (6)	Soft top compartment “open” switch
S84/6 (1)	Soft top fabric bow “raised” switch
S84/7 (2)	Soft top fabric bow “down” switch
S84/8 (5)	Soft top fabric bow “locked” switch

Diagnosis – Diagnostic Trouble Code (DTC) Memory

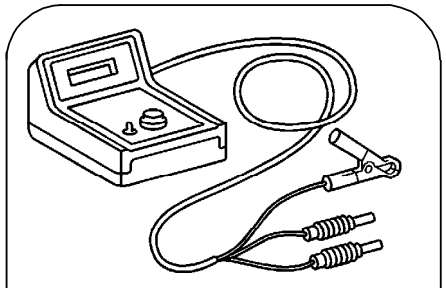
Preliminary work: Diagnosis – Function Test 11
Read out Diagnostic Trouble Codes, see section 0

Special Tools



201 589 00 99 00

Electrical connecting set



124 589 19 21 00

Pulse counter

Diagnosis

Limit switch diagnostic trouble codes (DTC's) are only stored when the soft top stops moving during soft top operation and the switch is held depressed until the indicator lamp begins blinking. The exceptions are the switches for roll bar extended and roll bar retracted where the indicator lamp in the roll bar switch lights. DTC's 5 - 16 are considered limit switch DTC's, which do not necessarily mean the respective switch is defective, but rather should be interpreted as an indication of which limit switch signals are absent and are needed for the sequence to continue.

Possible causes:

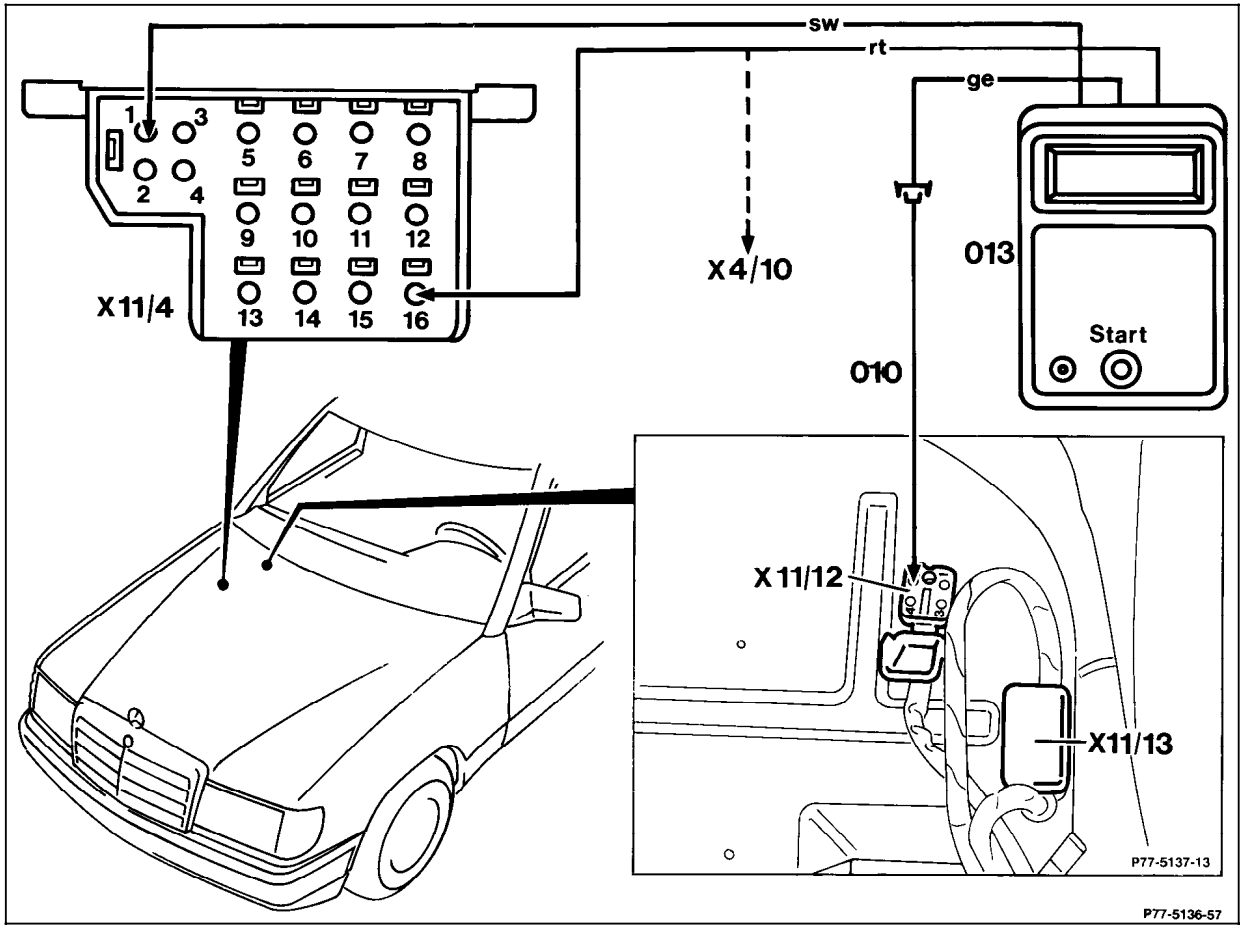
- Electrical fault (the last soft top or roll bar movement requested was completed).
- Hydraulic fault (the last soft top or roll bar movement requested, did not occur).

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Connection Diagram –
Impulse Counter Scan Tool

Connect to socket 2 of X11/12 located in right front passenger footwell.

To avoid need for extension cable (010), connect black lead of impulse counter scan tool to good ground and red lead to X4/10 inside vehicle interior.



P77-5136-57

Figure 1

010	Extension cable
013	Impulse counter scan tool
X4/10	Terminal block (circuit 30/circuit 61 battery)
X11/4	Data link connector (DTC readout)
X11/12	Power soft top test connector (4-pole)
X11/13	SRS test connector (10-pole)

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)	Possible cause	Test step/Remedy [1]
1	No DTC's stored.	–
2	Low voltage	23 ⇒ 1.0
3	Normal operating time exceeded	23 ⇒ 3.0
4	Illogical limit switch signals	24
5	Soft top compartment cover "locked" switch (A25/1s2)	23 ⇒ 5.0
6	Soft top compartment cover "closed" switch (A25/1s1)	23 ⇒ 6.0
7	Soft top storage compartment "open" switch (S84/5)	23 ⇒ 7.0
8	Soft top fabric bow "locked" switch (S84/8)	23 ⇒ 8.0
9	Soft top fabric bow "down" switch (S84/7)	23 ⇒ 9.0
10	Soft top fabric bow "raised" switch (S84/6)	23 ⇒ 10.0
11	Left front soft top "locked" switch (S84/1)	23 ⇒ 11.0
12	Right front soft top "locked" switch (S84/2)	23 ⇒ 12.0
13	Soft top "open" switch (soft top in storage compartment) (S84/3)	23 ⇒ 13.0
14	Soft top "overhead" switch (S84/4)	23 ⇒ 14.0
15	RB "retracted" switch (S83/5)	23 ⇒ 15.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)	Possible cause	Test step/Remedy [1]
16	RB “extended” switch (S83/6)	23 ⇒ 16.0
17	Automatic deployment of roll bar has occurred	23 ⇒ 17.0
18	Power soft top switch (S84)	23 ⇒ 18.0
19	Vehicle speed signal	23 ⇒ 19.0
20	Circuit in control module (N52), solenoid valve, roll bar retracted	N52
21	Circuit in CST/RB hydraulic unit (A7/5), circuit in RB rod side valve (Y57y10)	23 ⇒ 2.0, 21.0
22	Circuit in control module (N52), solenoid valve, roll bar extended	N52
23	Circuit in RB piston side valve (Y57y11)	23 ⇒ 23.0
24	Circuit in control module (N52), power windows	N52

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
Indicator lamp in power soft top switch (S84) does not light when switching ignition on	Control module (N52) Indicator lamp in power soft top switch (S84)	23 ⇒ 1.0 23 ⇒ 35.0, 36.0
Indicator lamp in power soft top switch (S84) lights with soft top **closed** (no DTC's) (Warning tone sounds for approx. 10 sec. while driving)	Soft top fabric bow "locked" switch (S84/8) Left front soft top "locked" switch (S84/1) Right front soft top "locked" switch (S84/2)	23 ⇒ 8.0 23 ⇒ 11.0 23 ⇒ 12.0
Indicator lamp in power soft top switch (S84) lights with soft top **open** (no diagnostic trouble codes) (Warning tone sounds for approx. 10 sec. while driving)	Soft top compartment cover "locked" switch (A25/1s2) Left front soft top "locked" switch (S84/1) Right front soft top "locked" switch (S84/2)	23 ⇒ 5.0 23 ⇒ 11.0 23 ⇒ 12.0
Indicator lamp in power soft top switch (S84) blinks when actuated	Diagnostic Trouble Code being stored in memory	Read out DTC's 12/1
Roll bar cannot be extended using RB switch (S83)	CST/RB hydraulic unit (A7/5) malfunction RB switch (S83) RB "extended" switch (S83/6) RB piston side valve (Y57y11) System pressure Roll bar extended	23 ⇒ 1.0, 2.0 23 ⇒ 20.0 23 ⇒ 16.0 23 ⇒ 23.0 33 ⇒ 1.0 33 ⇒ 4.0
Roll bar cannot be extended using rear seat RB switch (rear center console) (S83/4)	RB switch (rear center console) (S83/4) Rear power window safety switch (S21/7)	23 ⇒ 20.0 23 ⇒ 22.0

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
Roll bar cannot be extended using power soft top switch (S84)	RB piston side valve (Y57y11) System pressure Roll bar extended	23 ⇒ 23.0 33 ⇒ 1.0 33 ⇒ 4.0
Roll bar cannot be retracted using RB switch (S83)	CST/RB hydraulic unit (A7/5) does not run RB switch (S83) RB “retracted” switch (S83/5) RB rod side valve (Y57y10) Roll bar retracted	23 ⇒ 1.0, 2.0 23 ⇒ 20.0 23 ⇒ 15.0 23 ⇒ 21.0 33 ⇒ 3.0
Roll bar cannot be retracted using RB switch (rear center console (S83/4)	RB switch (rear center console) (S83/4) Rear power windows safety switch (S21/7)	23 ⇒ 20.0 23 ⇒ 22.0
Roll bar cannot be retracted using power soft top switch (S84)	CST/RB hydraulic unit (A7/5) does not run Power soft top switch (S84) RB “retracted” switch (S83/5) RB rod side valve (Y57y10) Roll bar retracted	23 ⇒ 1.0, 2.0 23 ⇒ 18.0 23 ⇒ 15.0 23 ⇒ 21.0 33 ⇒ 3.0
Side windows do not open at start of soft top operation	Voltage supply to CF control module (N57) CF control module (N57)	23 ⇒ 33.0
Side windows do not close at end of soft top operation (Front latches must be locked)	Soft top compartment cover “locked” switch (A25/1s2) Voltage supply to CF control module (N57) CF control module (N57)	23 ⇒ 5.0 23 ⇒ 33.0

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
Heated rear window does not shut off with soft top open	Soft top “overhead” switch (S84/4) Voltage supply to combination relay (heated rear window) (N10)	23 ⇒ 14.0 23 ⇒ 32.0
Soft top can be opened or closed while driving (front latches unlocked). No warning tone from the soft top control panel.	Vehicle speed signal from Hall-effect sensor multipoint connector (X53/5) Power soft top control module (N52)	23 ⇒ 19.0, 34.0
No centralized closing of side windows after pressing power soft top switch (S84) in **closing** direction twice	Power soft top switch (S84) Voltage supply to CF control module (N57) CF control module (N57)	23 ⇒ 18.0 23 ⇒ 33.0
No centralized opening of side windows after pressing power soft top switch (S84) in **opening** direction twice	Power soft top switch (S84) Voltage supply to CF control module (N57) CF control module (N57)	23 ⇒ 18.0 23 ⇒ 33.0

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Soft top closing sequence (Soft top unlocked at left and right front)

Complaint/Problem	Possible cause	Test step/Remedy [1]
Soft top compartment lock does not open.	CST/RB hydraulic unit (A7/5) does not run Left front soft top “locked” switch (S84/1) Right front soft top “locked” switch (S84/2) RB “retracted” switch (S83/5) Power soft top switch (S84) Soft top compartment lock valve (Y56y3) Hydraulic unit main valve (A7/5y1) RB control module (N53) System pressure Opening soft top compartment lock	23 ⇒ 1.0, 2.0 23 ⇒ 11.0 23 ⇒ 12.0 23 ⇒ 15.0 23 ⇒ 18.0 23 ⇒ 25.0 23 ⇒ 24.0 23 ⇒ 37.0 33 ⇒ 1.0 33 ⇒ 13.0
Soft top compartment lid does not open, or opens slowly	Soft top compartment cover valve (Y56y5) Raising soft top compartment lid vertically	23 ⇒ 27.0 33 ⇒ 14.0
Soft top does not come out of soft top compartment or comes out slowly	Soft top compartment “open” switch (S84/5) Soft top “close” valve (Y55y7) Closing soft top	23 ⇒ 7.0 23 ⇒ 29.0 33 ⇒ 15.0
Soft top fabric bow does not open, or opens slowly	Soft top “overhead” switch (S84/4) Fabric bow “raise” valve (Y55y8) Raising soft top fabric bow	23 ⇒ 14.0 23 ⇒ 30.0 33 ⇒ 16.0

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
Soft top compartment does not close, or closes slowly	Soft top fabric bow “raised” switch (S84/6) Fabric bow lock valve (Y56y4) Soft top storage compartment cover drive valve (Y56y5) Lowering of soft top storage compartment cover	23 ⇒ 10.0 23 ⇒ 26.0 23 ⇒ 27.0 33 ⇒ 17.0
Soft top compartment cover lock does not lock	Soft top compartment cover “closed” switch (A25/1s1) Soft top compartment lock valve (Y56y3) Locking of soft top compartment cover lock	23 ⇒ 6.0 23 ⇒ 25.0 33 ⇒ 18.0
Soft top fabric bow does not close or closes slowly	Soft top compartment cover “locked” switch (A25/1s2) Fabric bow “lower” valve (Y55y9) Lowering of soft top fabric bow	23 ⇒ 5.0 23 ⇒ 31.0 33 ⇒ 19.0
Soft top fabric bow lock does not lock	Soft top fabric bow “down” switch (S84/7) Fabric bow lock valve (Y56y4) Locking of soft top fabric bow lock	23 ⇒ 9.0 23 ⇒ 26.0 33 ⇒ 20.0

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Soft top opening sequence (Soft top unlatched at left and right front)

Complaint/Problem	Possible cause	Test step/Remedy [1]
Soft top fabric bow lock does not unlock	CST/RB hydraulic unit (A7/5) does not run Left front soft top “locked” switch (S84/1) Right front soft top “locked” switch (S84/2) RB “retracted” switch (S83/5) Power soft top switch (S84) Fabric bow lock valve (Y56y4) CST/RB hydraulic unit main valve (A7/5y1) RB control module (N53) System pressure Opening soft top fabric bow	23 ⇒ 1.0, 2.0 23 ⇒ 11.0 23 ⇒ 12.0 23 ⇒ 15.0 23 ⇒ 18.0 23 ⇒ 26.0 23 ⇒ 24.0 23 ⇒ 37.0 33 ⇒ 1.0 33 ⇒ 5.0
Soft top fabric bow does not rise or rises slowly	Soft top fabric bow “locked” switch (S84/8) Fabric bow “raise” valve (Y55y8) Setting fabric bow vertical	23 ⇒ 8.0 23 ⇒ 30.0 33 ⇒ 6.0
Soft top compartment lock does not unlock	Soft top fabric bow “raised” switch (S84/6) Soft top compartment lock valve (Y56y3) Opening soft top compartment latch	23 ⇒ 10.0 23 ⇒ 25.0 33 ⇒ 7.0

[1] Observe Preparation for Test, see 22.

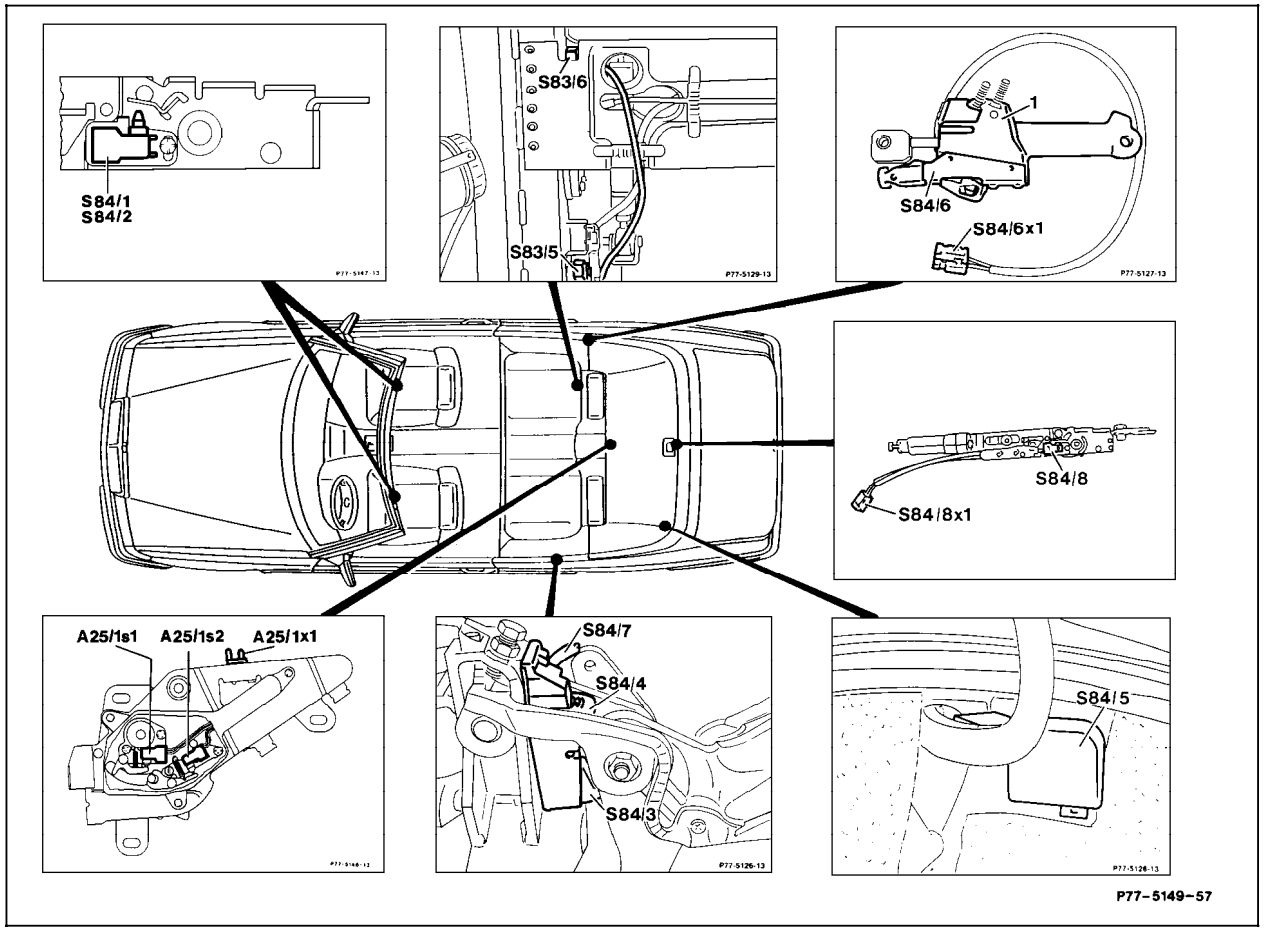
Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
Soft top compartment cover does not open or opens slowly	Soft top compartment cover drive valve (Y56y5) Raising soft top compartment cover	23 ⇒ 27.0 33 ⇒ 8.0
Soft top fabric bow does not close or closes slowly	Soft top compartment “open” switch (S84/5) Fabric bow “lower” valve (Y55y9) Lowering soft top fabric bow	23 ⇒ 7.0 23 ⇒ 31.0 33 ⇒ 9.0
Soft top does not open or opens slowly	Soft top fabric bow “down” switch (S84/7) Soft top “open” valve (Y55y6) Opening soft top	23 ⇒ 9.0 23 ⇒ 28.0 33 ⇒ 10.0
Soft top compartment cover does not close or closes slowly	Soft top “open” switch (soft top in storage compartment) (S84/3) Fabric bow lock valve (Y56y4) Soft top compartment cover drive valve (Y56y5) Lowering soft top storage compartment cover	23 ⇒ 13.0 23 ⇒ 26.0 23 ⇒ 27.0 33 ⇒ 11.0
Soft top compartment cover latch does not lock	Soft top compartment cover “closed” switch (A25/1s1) Soft top compartment cover drive valve (Y56y5) Locking soft top storage compartment cover latch	23 ⇒ 6.0 23 ⇒ 25.0 33 ⇒ 12.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program - Component Locations

Limit switches



P77-5149-57

Figure 1

A25/1s1	Soft top compartment cover “closed” switch
A25/1s2	Soft top compartment cover “locked” switch
S83/5	RB “retracted” switch
S83/6	RB “extended” switch
S84/1	Left front soft top “locked” switch
S84/2	Right front soft top “locked” switch
S84/3	Soft top “open” switch (soft top in storage compartment)
S84/4	Soft top “overhead” switch
S84/5	Soft top compartment “open” switch
S84/6	Soft top fabric bow “raised” switch
S84/7	Soft top fabric bow “down” switch
S84/8	Soft top fabric bow “locked” switch

Electrical Test Program - Component Locations

Switches and control modules

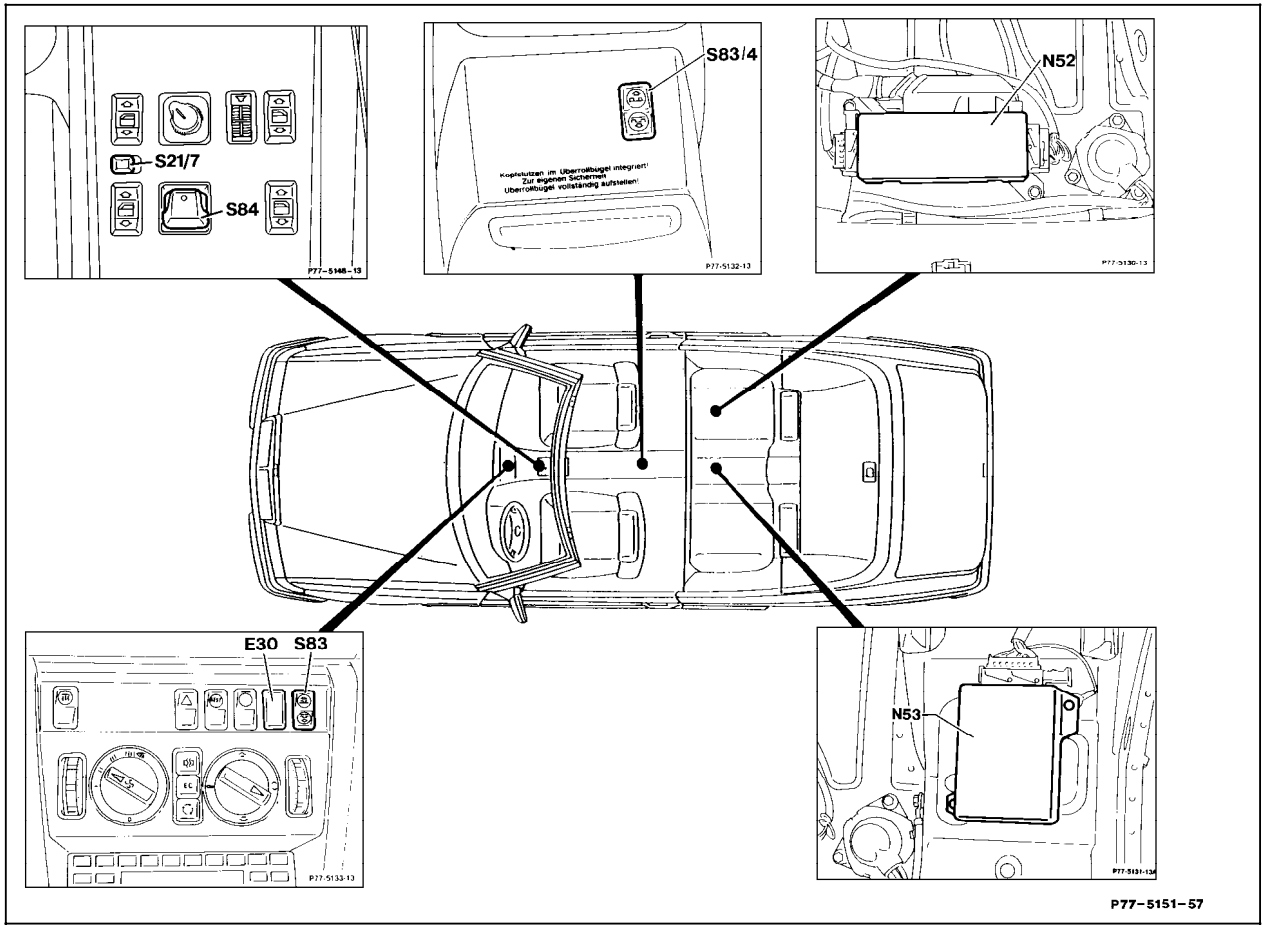


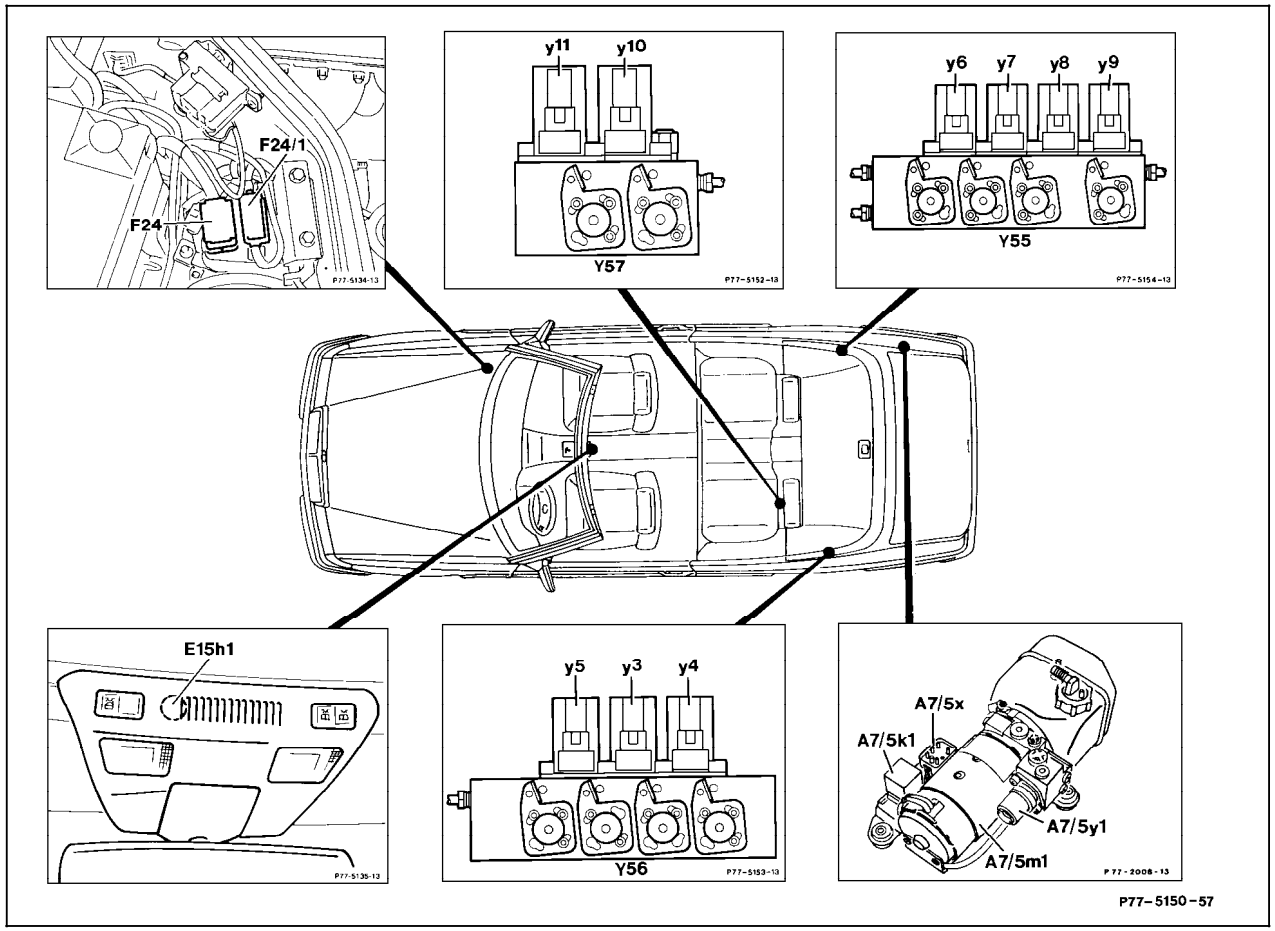
Figure 2

E30	Center console roll bar malfunction indicator lamp
N52	Power soft top control module
N53	RB control module (crash deployment)
S21/7	Rear power window safety switch
S83	RB switch (manual operation)
S83/4	RB switch (rear center console)
S84	Power soft top switch

P77-5151-57

Electrical Test Program - Component Locations

Electrical components



P77-5150-57

Figure 3

A7/5	CST/RB hydraulic unit
A7/5k1	Relay
A7/5m1	Motor
A7/5x	Soft top/roll bar hydraulic unit connector
A7/5y1	Main valve
E15	Dome lamp (with shut-off delay and reading lamp)
E15h1	Warning buzzer
F24	Auxiliary fuse holder (CST/RB)
F24/1	Auxiliary fuse holder (hydraulic unit)
Y55	Right CST valve block (4 connections)
Y55y6	Soft top “open” valve
Y55y7	Soft top “close” valve
Y55y8	Fabric bow “raise” valve
Y55y9	Fabric bow “lower” valve
Y56	Left CST valve block (3 connections)
Y56y3	Soft top compartment lock valve
Y56y4	Fabric bow lock valve
Y56y5	Soft top compartment cover drive valve
Y57	RB valve block
Y57y10	Rod side valve
Y57y11	Piston side valve

Electrical Test Program - Preparation for Test

- Battery voltage 11–14 V **(when working on soft top system, always connect battery charger)**.
- RB switch must not blink (section 19.1).
- Fuses F24, F24/1 and F1/A O.K.

Electrical wiring diagrams:
Electrical Troubleshooting Manual, Model 124

⚠ **Note regarding limit switch testing:**

TO ENTER CONTROL MODULE DIAGNOSTIC MODE:

1. Ignition: **OFF.**
2. Bridge sockets 1 and 3 of connector (X11/12) in passenger footwell (23, Figure 1.)
3. Ignition: **ON.**
4. Remove bridge.

⚠ **IMPORTANT NOTE**

The test in the next section (23) calls for the connection of the socket box to the power soft top control module in 3 different ways. Connections are distinguished as connections made to the power soft top control module connector X, Y or Z. These are indicated in the test as follows:

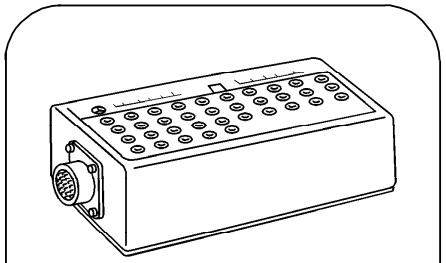
X  Cp-onnect socket box according to connection diagram ”Socket Box to connector X” (22, Fig. 4.)

Y  Connect socket box according to connection diagram ”Socket Box to connector Y” (22, Fig. 5.)

Z  Connect socket box according to connection diagram ”Socket Box to connector Z” (22, Fig. 6.)

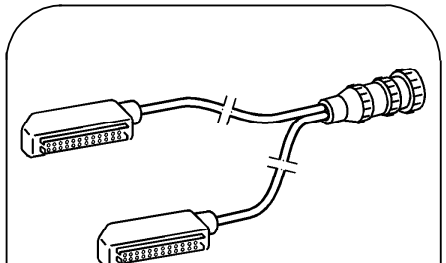
Electrical Test Program - Preparation for Test

Special Tools



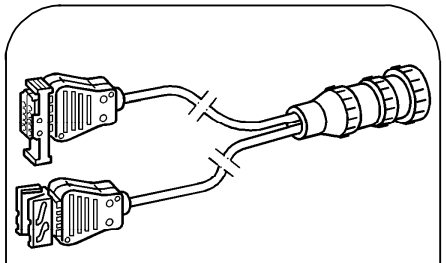
124 589 00 21 00

35-pin socket box



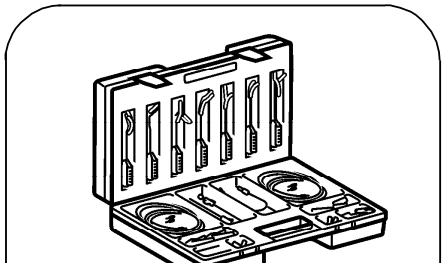
129 589 00 63 00

35-pin test cable



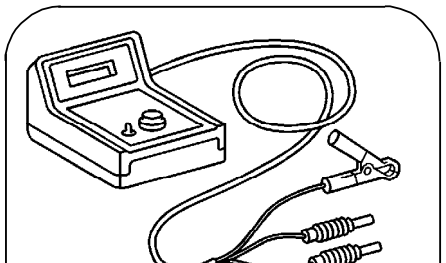
129 589 01 63 00

12-pin test cable



201 589 00 99 00

Electrical connecting set



124 589 19 21 00

Pulse counter

Equipment

Digital multimeter [1)]	Fluke models 23, 83, 85, 87
Battery charger	Local supply

[1)]Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Preparation for Test

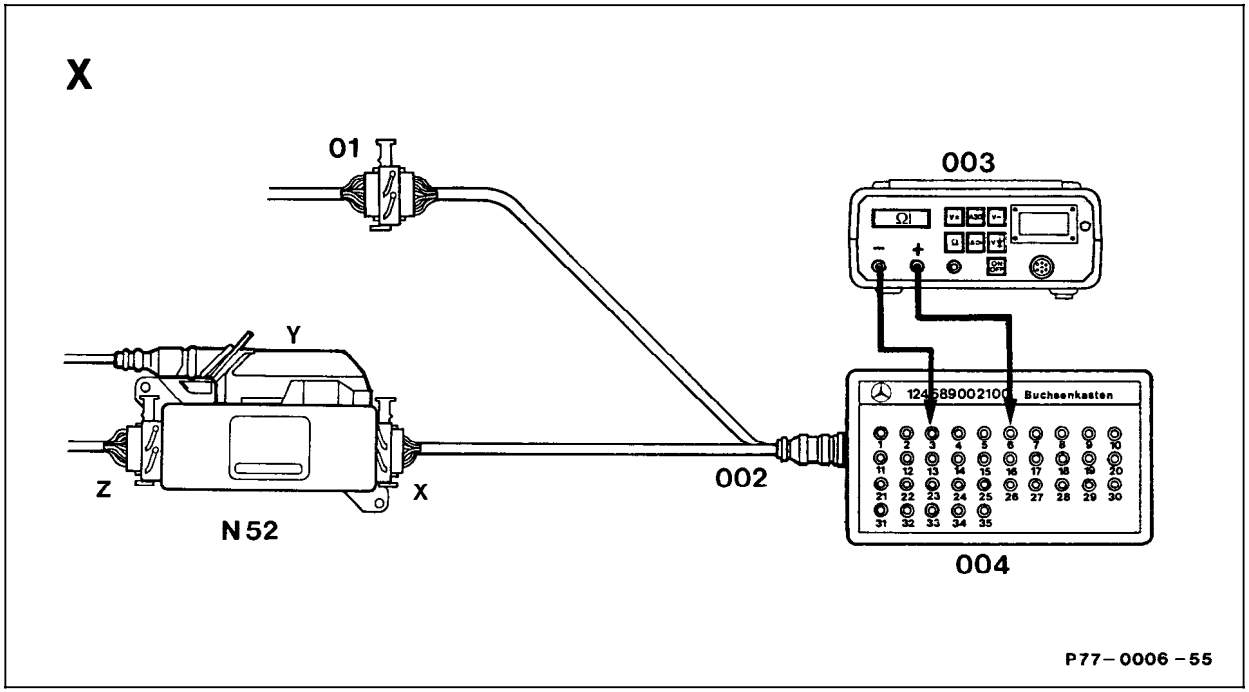
⚠ **CAUTION!**

Ignition: **OFF.**

Separate connector X from control module.

Connect socket box.

Connection Diagram –
Socket Box to Connector X



P77-0006-55

Figure 4

01	12-pole connector (vehicle harness)
002	12-pole test cable 129 589 01 63 00
003	Multimeter
004	Socket box
N52	Power soft top control module

Electrical Test Program - Preparation for Test

⚠ **CAUTION!**

Ignition: **OFF.**

Separate connector Y from control module.

Connect socket box.

Connection Diagram –
Socket Box to connector Y

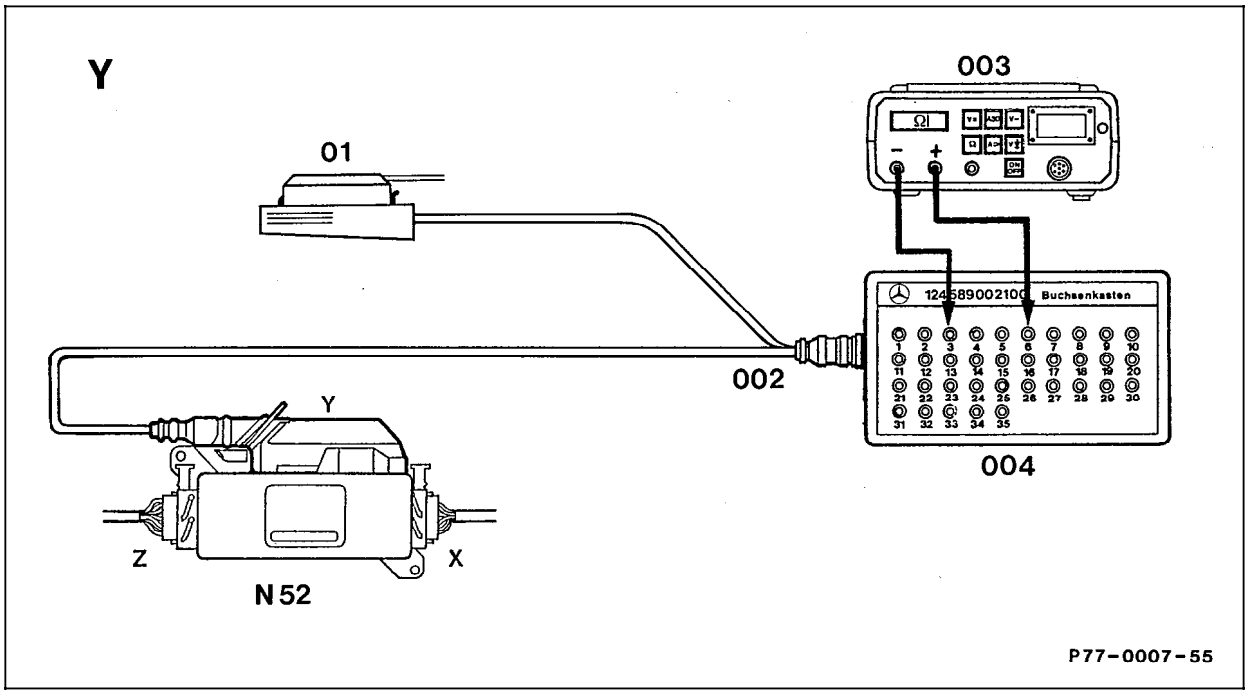


Figure 5

01	35-pole connector (vehicle harness)
002	35-pole test cable 129 589 00 63 00
003	Multimeter
004	Socket box
N52	Power soft top control module

P77-0007-55

Electrical Test Program - Preparation for Test

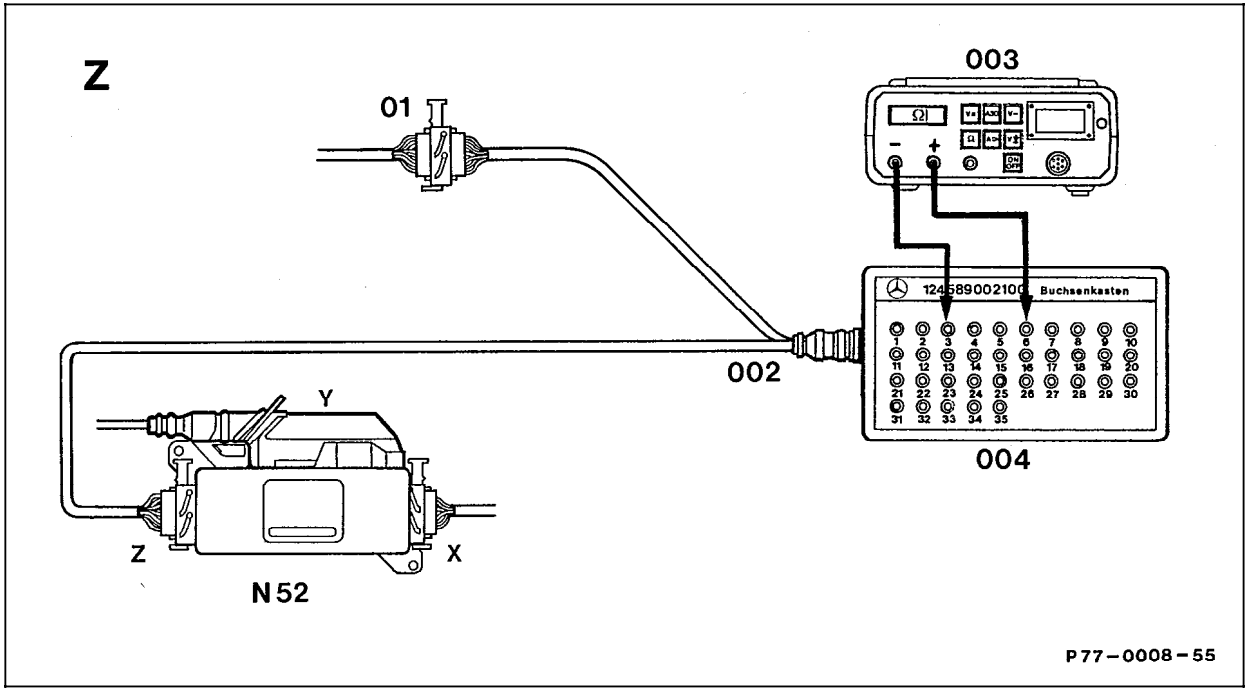
⚠ **CAUTION!**

Ignition: **OFF.**

Separate connector Z from control module.

Connect socket box.

Connection Diagram –
Socket Box to Connector Z



P77-0008-55

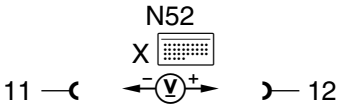
Figure 6

01	12-pole connector (vehicle harness)
002	12-pole test cable 129 589 01 63 00
003	Multimeter
004	Socket box
N52	Power soft top control module

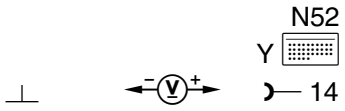
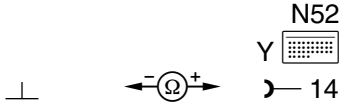
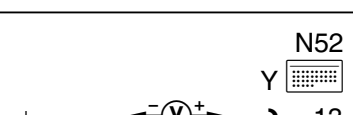
Electrical Test Program - Test

Test step	DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	2	**Power soft top control module (N52)** Voltage supply Circuits 30, 15	N52 X 11 — (V) — 12 N52 Z 6 — (V) — 5	 Ignition: **ON**	11 – 14 V 11 – 14 V	⇒ 1.1, Circuit 31.
⇒ 1.1		Voltage supply Circuits 30, 15	N52 X ⊥ — (V) — 12 N52 Z ⊥ — (V) — 5	 Ignition: **ON**	11 – 14 V 11 – 14 V	Circuit 30. Circuit 15.
⇒ 2.0	21	**CST/RB hydraulic unit (A7/5) switching circuit** Voltage supply	A7/5x1 1 — (V) — 4 A7/5x1 5 — (V) — 4	Disconnect connector (A7/5x1).	11 – 14 V 11 – 14 V	Wiring.

Electrical Test Program - Test

Test step	DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [2.0]				Ignition: **ON** Open front locks. Press power soft top switch (S84) in **opening** or **closing** position.	0 – 1 V 11 – 14 V Hydraulic unit (A7/5m1) runs.	⇒ 18.0, ⇒ 18.0, ⇒ 21.0, ⇒ 2.1, Relay (A7/5k1), Wiring.
⇒ 2.1		A7/5m1		Unplug A7/5k1. Bridge sockets 1 and 3 of A7/5k1 connector.	A7/5m1 runs	Wiring, A7/5m1.
⇒ 3.0	3	**Operating time exceeded**		Erase DTC's.	DTC 1	Control module (N52).
⇒ 4.0	4	**Limit switch signals illogical**		Check limit switch signals according to chart (24).		Wiring, Limit switch.

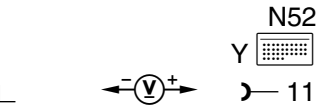
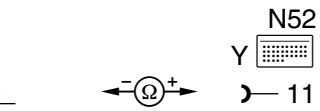
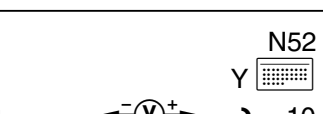
Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.0 5	**Soft top compartment cover "locked" switch (A25/1s2) circuit** Voltage supply		Control module (N52) in diagnostic mode 22. **Soft top compartment cover**: locked unlocked	 0 – 1 V 11 – 14 V	 ⇒ 5.1, ⇒ 5.1,
⇒ 5.1 5	A25/1s2 Resistance		Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Soft top compartment cover**: locked unlocked	 0 – 5 Ω >20 kΩ	A25/1s2, Wiring, If nominal value is obtained: N52.
⇒ 6.0 6	**Soft top compartment cover "closed" switch (A25/1s1) circuit** Voltage supply		Control module (N52) in diagnostic mode 22. **Soft top compartment cover**: closed opened	 0 – 1 V 11 – 14 V	 ⇒ 6.1, ⇒ 6.1,

Electrical Test Program - Test

Test step	DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.1	6	A25/1s1 Resistance	N52 Y ⊥ Ω + — 13	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Soft top compartment cover:** closed opened	 0 – 5 Ω >20 kΩ	A25/1s1, Wiring, If nominal value is obtained: N52.
⇒ 7.0	7	**Soft top compartment cover "open" switch (S84/5) circuit** Voltage supply	N52 Y ⊥ V + — 15	Control module (N52) in diagnostic mode 22. **Soft top compartment cover**: opened closed	 0 – 1 V 11 – 14 V	 ⇒ 7.1, ⇒ 7.1,
⇒ 7.1	7	S84/5 Resistance	N52 Y ⊥ Ω + — 15	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Soft top compartment cover:** opened closed	 0 – 5 Ω >20 kΩ	S84/5, Wiring, If nominal value is obtained: N52.

Electrical Test Program - Test

Test step	DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 8.0	8	**Soft top fabric bow "locked" switch (S84/8) circuit** Voltage supply		Control module (N52) in diagnostic mode 22. **Fabric bow:** locked unlocked	 0 – 1 V 11 – 14 V	 ⇒ 8.1, ⇒ 8.1.
⇒ 8.1	8	S84/8 Resistance		Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Fabric bow:** locked unlocked	 0 – 5 Ω >20 kΩ	S84/8, Wiring, If nominal value is obtained: N52.
⇒ 9.0	9	**Soft top fabric bow "down" switch (S84/7) circuit** Voltage supply		Control module (N52) in diagnostic mode 22. **Fabric bow:** lowered raised	 0 – 1 V 11 – 14 V	 ⇒ 9.1, ⇒ 9.1, N52.

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 9.1	S84/7 Resistance	N52 Y ⊥ Ω) 10	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Fabric bow:** owered raised	 0 – 5 Ω >20 kΩ	S84/7, Wiring, If nominal value is obtained: N52.
⇒ 10.0	**Soft top fabric bow “raised” switch (S84/6) circuit** Voltage supply	N52 Y ⊥ V) 12	Control module (N52) in diagnostic mode 22. **Fabric bow:** raised lowered	 0 – 1 V 11 – 14 V	 ⇒ 10.1, ⇒ 10.1,
⇒ 10.1	S84/6 Resistance	N52 Y ⊥ Ω) 12	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Fabric bow:** raised lowered	 0 – 5 Ω >20 kΩ	S84/6, Wiring, If nominal value is obtained: N52.

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 11.0	**Left front soft top "locked" switch (S84/1) circuit** Voltage supply	N52 Y ⊥ V 5	Control module (N52) in diagnostic mode 22. **Front of soft top:** locked unlocked	 0 – 1 V 11 – 14 V	 ⇒ 11.1, ⇒ 11.1,
⇒ 11.1	S84/1 Resistance	N52 Y ⊥ Ω 5	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Front of soft top:** locked unlocked	 0 – 5 Ω >20 kΩ	S84/1, Wiring, If nominal value is obtained: N52.
⇒ 12.0	**Right front soft top "locked" switch (S84/2) circuit** Voltage supply	N52 Y ⊥ V 6	Control module (N52) in diagnostic mode 22. **Front of soft top:** locked unlocked	 0 – 1 V 11 – 14 V	 ⇒ 12.1, ⇒ 12.1,

Electrical Test Program - Test

Test step	DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 12.1	12	S84/2 Resistance	N52 Y ⊥ Ω 6	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Front of soft top:** locked unlocked	 0 – 5 Ω >20 kΩ	S84/2, Wiring, If nominal value is obtained: N52.
⇒ 13.0	13	**Soft top "open" switch (soft top in storage compartment) (S84/3) circuit** Voltage supply	N52 Y ⊥ V 9	Control module in diagnostic mode 22 **Soft top:** opened closed	 0 – 1 V 11 – 14 V	 ⇒ 13.1, ⇒ 13.1.
⇒ 13.1	13	S84/3 Resistance	N52 Y ⊥ Ω 9	Ignition: **OFF** Disconnect test cable (Y) from control module (N52) **Soft top:** opened closed	 0 – 5 Ω >20 kΩ	S84/3, Wiring, If nominal value is obtained: N52.

Electrical Test Program - Test

Test step	DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 14.0	14	**Soft top "overhead" switch (S84/4) circuit** Voltage supply	⊥ –(V)+ N52 Y — 7	Control module (N52) in diagnostic mode 22. **Soft top:** closed opened	 0 – 1 V 11 – 14 V	 ⇒ 14.1, ⇒ 14.1.
⇒ 14.1	14	S84/4 Resistance	⊥ –(Ω)+ N52 Y — 7	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Soft top:** closed opened	 0 – 5 Ω >20 kΩ	S84/4, Wiring, If nominal value is obtained: N52.
⇒ 15.0	15	**RB "retracted" switch (S83/5) circuit** Voltage supply	–(V)+ N52 Y — 16	Control module (N52) in diagnostic mode 22. **Roll bar:** retracted extended	 0 – 1 V 11 – 14 V	 ⇒ 15.1, ⇒ 15.1.

Electrical Test Program - Test

Test step	DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.1	15	S83/5 Resistance	N52 Y ⊥ Ω — 16	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Roll bar:** retracted extended	 0 – 5 Ω >20 kΩ	S83/5, Wiring, If nominal value is obtained: N52.
⇒ 16.0	16	**RB "extended" switch (S83/6) circuit** Voltage supply	N52 Y ⊥ V — 17	Control module (N52) in diagnostic mode 22. **Roll bar:** extended retracted	 0 – 1 V 11 – 14 V	 ⇒ 16.1, ⇒ 16.1.
⇒ 16.1	16	S83/6 Resistance	N52 Y ⊥ Ω — 17	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). **Roll bar:** extended retracted	 0 – 5 Ω >20 kΩ	S83/6, Wiring, If nominal value is obtained: N52.

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 17.0 17	**Roll bar** **Crash deployment**		Ignition: **OFF, ON** Press RB switch (S83) to **extend** position, (approx. 10 sec.). Retract roll bar using RB switch (S83).	 Roll bar is retracted.	Crash deployment occurred.
⇒ 18.0 18	**Power soft top switch (S84) circuit** Voltage supply	N52 Y ⊥ V 1	Ignition: **ON** Press switch S84 to **closing** position.	11 – 14 V 0 – 1 V	⇒ 18.1.
		N52 Y ⊥ V 2	Ignition: **ON** Press switch S84 to **opening** position.	11 – 14 V 0 – 1 V	

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.1 18	S84 Resistance	N52 Y ⊥ Ω — 1 N52 Y ⊥ Ω — 2	Disconnect test cable (Y) from control module (N52) Switch S84 in: **rest** position **closing** position **rest** position **opening** position	 >20 kΩ 0 – 5 Ω >20 kΩ 0 – 5 Ω	Wiring, S84, If nominal value is obtained: N52.
⇒ 19.0 19	**Vehicle speed signal**	N52 Y ⊥ V — 35	Drive vehicle at approx. 25 mph (40 km/h)		
⇒ 20.0	**RB switch (S83) circuit and RB switch (rear center console) (S83/4) circuit** Voltage supply	N52 Y ⊥ V — 5	Ignition: **ON** Rear power window safety switch (S21/7) in unlocked position. S83 and S83/4 in: **rest** position	 11 – 14 V	 ⇒ 20.1, ⇒ 20.2.

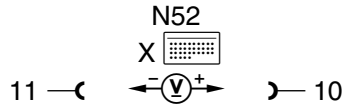
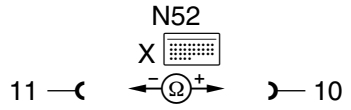
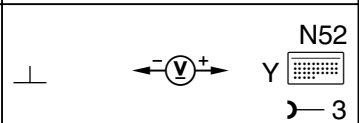
Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [20.0]		N52 X 4	Push switch S83 to **extend** roll bar.	0 – 1 V	⇒ 20.1,
			Push switch S83/4 to **extend** roll bar.	0 – 1 V	⇒ 20.2, ⇒ 22.0,
			S83 and S83/4 in: **rest** position	11 – 14 V	⇒ 20.1, ⇒ 20.2,
			Push switch S83 to **retract** roll bar.	0 – 1 V	⇒ 20.1,
			Push switch S83/4 to **retract** roll bar.	0 – 1 V	⇒ 20.2, ⇒ 22.0.
⇒ 20.1	S83 Resistance	N52 X 3	Ignition: **OFF** Disconnect test cable (Y) from control module. S83 and S83/4 in: **rest** position	>20 kΩ	Wiring, S83, S83/4.
			Push switch S83 to **extend** roll bar.	0 – 5 Ω	

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [20.1]		N52 Y ⊥ Ω 4	S83 and S83/4 in: **rest** position	>20 kΩ	Wiring, S83, S83/4, If nominal value is obtained: control module (N52).
			Push switch S83 to **retract** roll bar.	0 – 5 Ω	
⇒ 20.2	S83/4 Resistance	N52 Y ⊥ Ω 3	Ignition: **OFF** Disconnect test cable (Y) from N52. S83 and S83/4 in: **rest** position	>20 kΩ	Wiring, S83, S83/4, If nominal value is obtained: N52.
			Push switch S83/4 to **extend** roll bar.	0 – 5 Ω	
		N52 Y ⊥ Ω 4	S83 and S83/4 in: **rest** position	>20 kΩ	
			Push switch S83/4 to **retract** roll bar.	0 – 5 Ω	

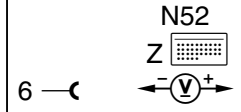
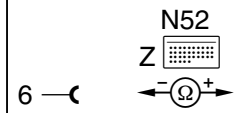
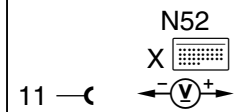
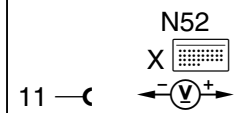
Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 21.0 21	**Rod side valve (Y57y10) circuit** Voltage supply		Ignition: **ON** Operate roll bar using switch (S83) to: **retract** **extend**	0 – 1 V 11 – 14 V 11 – 14 V	S83, Control module (N52), ⇒ 21.1, ⇒ 21.1.
⇒ 21.1 21	Y57y10 Resistance		Disconnect test cable (X) from control module (N52).	10 – 20 Ω	Wiring, Y57y10, Relay (A7/5k1), If nominal value is obtained: N52.
⇒ 22.0	**Rear power window safety switch (S21/7) circuit** Voltage supply		Ignition: **ON** Hold switch (S83/4) in roll bar extend position. Position of S21/7: **locked** **unlocked**	 9 – 14 V 0 – 1 V	 Wiring, ⇒ 22.1, Wiring, ⇒ 22.1, ⇒ 20.0.

Electrical Test Program - Test

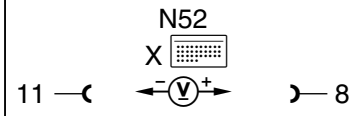
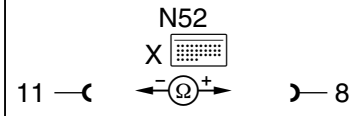
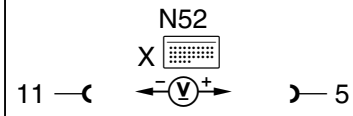
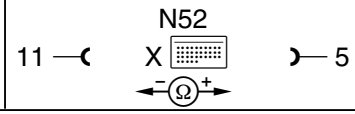
Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 22.1	S21/7 Resistance	N52 X ⊥ Ω 3	Ignition: **OFF** Disconnect test cable (Y) from control module (N52). Hold switch S83/4 in roll bar “extend” position. Position of S21/7: **unlocked** **locked**	 0 – 5 Ω >20 kΩ	Wiring, S21/7, If nominal value is obtained: N52.
⇒ 23.0	**Piston side valve (Y57y11) circuit** Voltage supply	N52 Z 6 V 2	Ignition: **ON** Operate roll bar using switch (S83) to: **extend** **retract**	 11 – 14 V 0 – 1 V	 ⇒ 23.1, Control module (N52).
⇒ 23.1	Y57y11 Resistance	N52 Z 6 Ω 2	Disconnect test cable (Z) from control module (N52).	5 – 15 Ω	Wiring, Y57y11, If nominal value is obtained: N52.

Electrical Test Program - Test

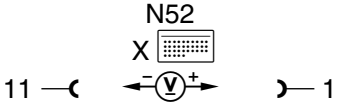
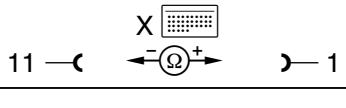
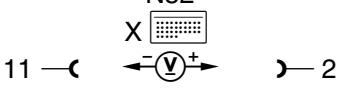
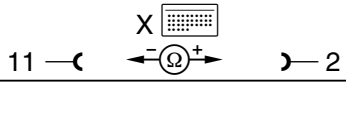
Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 24.0	**Hydraulic unit main valve (A7/5y1) [1] circuit** Voltage supply		Ignition: **ON** Open front locks Move soft top switch to **closing** or **opening** position roll bar retracted.	0 – 1 V 10 – 14 V	Control module (N52). ⇒ 24.1.
⇒ 24.1	A7/5y1 Resistance		Disconnect test cable (Z) from control module (N52).	5 – 15 Ω	Wiring, A7/5y1, If nominal value is obtained: N52.
⇒ 25.0	**Soft top compartment lock valve (Y56y3) circuit** Voltage supply		Ignition: **ON** Operate soft top compartment cover using switch (S84) to: **unlock** **lock**	 10 – 14 V 0 – 1 V	 ⇒ 25.1. Control module (N52).
⇒ 25.1	Y56y3 Resistance		Disconnect test cable (X) from control module (N52).	5 – 15 Ω	Wiring, Y56y3, If nominal value is obtained: Y56y3 is physically sticking or control module (N52).

[1] CST/RB hydraulic unit main valve (A7/5y1) was eliminated as of chassis number 124.061/066-1B-837708.

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 26.0	**Fabric bow lock valve (Y56y4), Soft top compartment cover "closed" circuit** Voltage supply		Ignition: **ON** Operate fabric bow using power soft top switch (S84) to: **unlock** **lock**	 10 – 14 V 0 – 1 V	 ⇒ 26.1, Control module (N52).
⇒ 26.1	Y56y4 Resistance		Disconnect test cable (X) from control module (N52).	5 – 15 Ω	Wiring, Y56y4, If nominal value is obtained: Y56y3 is physically sticking or control module (N52).
⇒ 27.0	**Soft top compartment cover drive valve (Y56y5), Compartment cover "open" circuit** Voltage supply		Ignition: **ON** Operate soft top compartment cover using power soft top switch (S84) to: **raise** **lower**	 10 – 14 V 0 – 1 V	 ⇒ 27.1, Control module (N52).
⇒ 27.1	Y56y5 Resistance		Disconnect test cable (X) from control module (N52).	5 – 15 Ω	Wiring, Y56y5, If nominal value is obtained: N52.

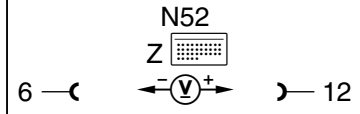
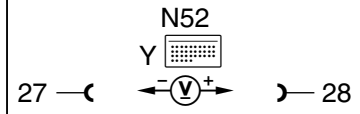
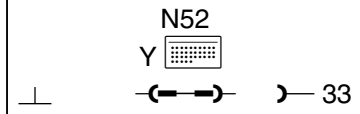
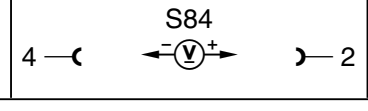
Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 28.0	**Soft top "open" valve (Y55y6) circuit** Voltage supply		Ignition: **ON** Operate soft top using power soft top switch (S84): **opening** **closing**	 10 – 14 V 0 – 1 V	 ⇒ 28.1, Control module (N52).
⇒ 28.1	Y55y6 Resistance		Disconnect test cable (X) from control module (N52).	5 – 15 Ω	Wiring, Y55y6, If nominal value is obtained: N52.
⇒ 29.0	**Soft top "close" valve (Y55y7) circuit** Voltage supply		Ignition: **ON** Operate soft top using power soft top switch (S84): **closing** **opening**	 10 – 14 V 0 – 1 V	 ⇒ 29.1, Control module (N52).
⇒ 29.1	Y55y7 Resistance		Disconnect test cable (X) from control module (N52).	5 – 15 Ω	Wiring, Y55y7, If nominal value is obtained: N52.

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 30.0	**Fabric bow "raise" valve (Y55y8) circuit** Voltage supply	N52 X 11 — 3	Ignition: **ON** Operate fabric bow using power soft top switch (S84) to: **raise** **lower**	 10 – 14 V 0 – 1 V	 ⇒ 30.1, Control module (N52).
⇒ 30.1	Y55y8 Resistance	N52 X 11 — 3	Disconnect test cable (X) from control module (N52).	5 – 15 Ω	Wiring, Y55y8, If nominal value is obtained: N52.
⇒ 31.0	**Fabric bow "lower" valve (Y55y9) circuit** Voltage supply	N52 X 11 — 4	Ignition: **ON** Operate fabric bow using power soft top switch (S84) to: **lower** **raise**	 10 – 14 V 0 – 1 V	 ⇒ 31.1, Control module (N52).
⇒ 31.1	Y55y9 Resistance	N52 X 11 — 4	Disconnect test cable (X) from control module (N52).	5 – 15 Ω	Wiring, Y55y9, If nominal value is obtained: N52.

Electrical Test Program - Test

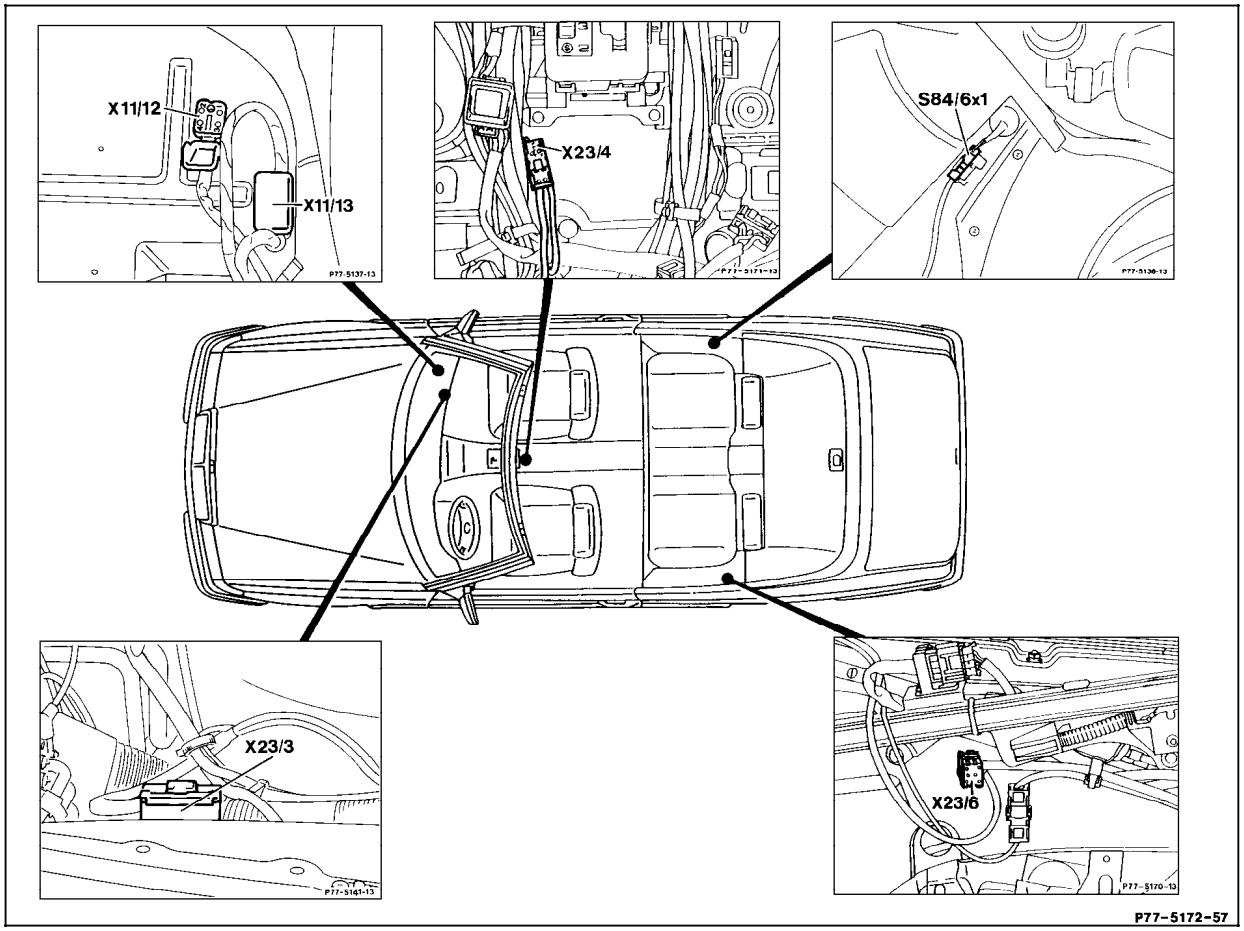
Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 32.0	**Combination relay (heated rear window, N10)** Voltage supply		Soft top opened.	Multimeter display blinks (approx. 2 Hz).	Wiring, Soft top “overhead” switch (S84/4), Control module (N52).
⇒ 33.0	**CF control module (N57)** Voltage supply		Ignition: **ON** Tap power soft top switch (S84) twice and hold: in **opening** position in **closing** position	0 – 1 V – 9 to – 14 V 9 – 14 V	Wiring, Control module (N52), CF control module (N57).
⇒ 34.0	**Ceiling control panel warning buzzer**		Ignition: **ON**	Tone sounds.	Wiring, Dome lamp (with shut off delay) (E15).
⇒ 35.0	**Indicator lamp power soft top switch (S84)** Voltage supply		Ignition: **ON**	11 – 14 V	Wiring.

Electrical Test Program - Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 36.0	**Signal to power soft top switch indicator lamp (S84)**		Soft top completely closed or opened. Ignition: **ON**	Indicator lamp should light for approx. 1 s.	Wiring, S84, Control module (N52).
⇒ 37.0	**RB control module (N53)**	N52 Y ⊥ V+ 19 N52 Y ⊥ V+ 19	Ignition: **ON**	> 2.4 V > 2.4 V	Wiring, Malfunction in roll bar system (see DM, Body and Accessories, Vol. 3, section 19.1), Control module (N53).

Electrical Test Program - Test

Connector locations



P77-5172-57

Figure 1

S84/6x1 Soft top fabric bow “raised” switch connector
X11/12 Power soft top test connector (4-pole)
X23/3 Soft top/interior connector (14-pole)
X23/4 RB/power windows connector (14-pole)
X23/6 Soft top harness/soft top limit switch connector (4-pole)

Electrical Test Program - Survey of Electrical Limit Switch Signals

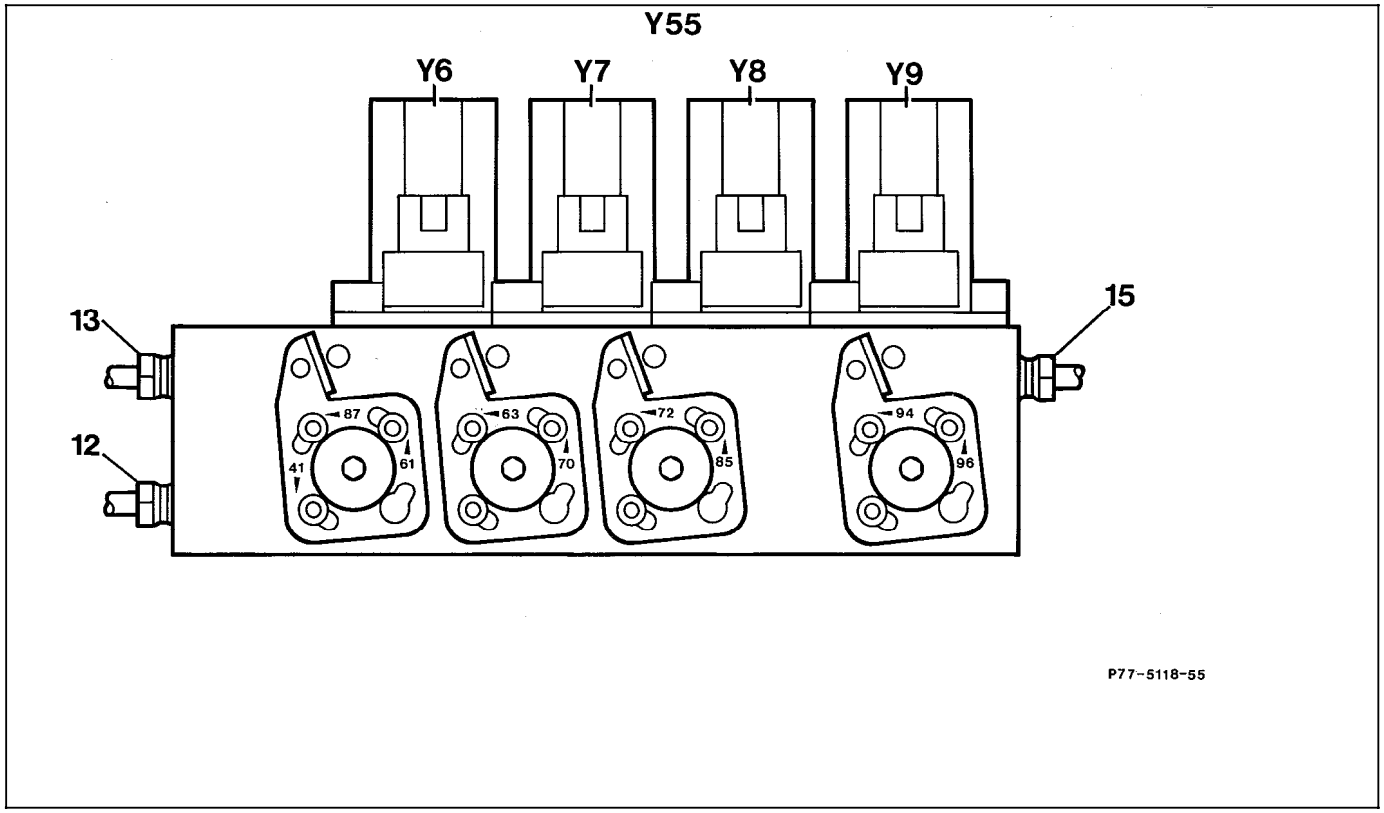
Soft top opening sequence Actuated limit switches	Soft top			Fabric bow			Soft top compartment cover			Roll bar	
	locked	up	open	down	locked	open	closed	locked	open	retracted	extended
	S84/1 S84/2	S84/4	S84/3	S84/7	S84/8	S84/6	A25/1s1	A25/1s2	S84/5	S83/5	S83/6
Connection diagram - Socket box to connector Y (22, Fig. 5) **Control module in diagnostic mode 22**	Y ⊥ 5 ⊥ 6	Y ⊥ 7	Y ⊥ 9	Y ⊥ 10	Y ⊥ 11	Y ⊥ 12	Y ⊥ 13	Y ⊥ 14	Y ⊥ 15	Y ⊥ 16	Y ⊥ 17
Front of soft top unlocked, roll bar extended	11–14 V	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**
Roll bar retracted	11–14 V	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Fabric bow unlocked	11–14 V	**0–1 V**	11–14 V	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Fabric bow raised	11–14 V	**0–1 V**	11–14 V	11–14 V	11–14 V	**0–1 V**	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Soft top compartment cover opened	11–14 V	**0–1 V**	11–14 V	11–14 V	11–14 V	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V
Fabric bow stored	11–14 V	**0–1 V**	11–14 V	**0–1 V**	11–14 V	11–14 V	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V
Soft top opened	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V
Soft top compartment cover locked	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Roll bar extended	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**
Front of soft top locked	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**

Electrical Test Program - Survey of Electrical Limit Switch Signals

Soft top closing sequence Actuated limit switches	Soft top			Fabric bow			Soft top compartment cover			Roll bar	
	locked	up	open	down	locked	open	closed	locked	open	retracted	extended
	S84/1 S84/2	S84/4	S84/3	S84/7	S84/8	S84/6	A25/1s1	A25/1s2	S84/5	S83/5	S83/6
Connection diagram - Socket box to connector Y (22, Fig. 5) **Control module in diagnostic mode 22**	Y ⊥ 5 ⊥ 6	Y ⊥ 7	Y ⊥ 9	Y ⊥ 10	Y ⊥ 11	Y ⊥ 12	Y ⊥ 13	Y ⊥ 14	Y ⊥ 15	Y ⊥ 16	Y ⊥ 17
Front of soft top unlocked, roll bar extended	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**
Roll bar retracted	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Soft top compartment cover opened	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	11–14 V	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V
Soft top closed, Fabric bow lowered	11–14 V	**0–1 V**	11–14 V	**0–1 V**	11–14 V	11–14 V	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V
Fabric bow raised	11–14 V	**0–1 V**	11–14 V	11–14 V	11–14 V	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V
Soft top compartment cover locked	11–14 V	**0–1 V**	11–14 V	11–14 V	11–14 V	**0–1 V**	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Fabric bow stored	11–14 V	**0–1 V**	11–14 V	**0–1 V**	11–14 V	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Fabric bow locked	11–14 V	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V
Front of soft top locked	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	**0–1 V**	11–14 V	**0–1 V**	11–14 V

Electrical Test Program - Survey of Electrical Valve Actuation

Right CST valve block
(4 connections) (Y55)



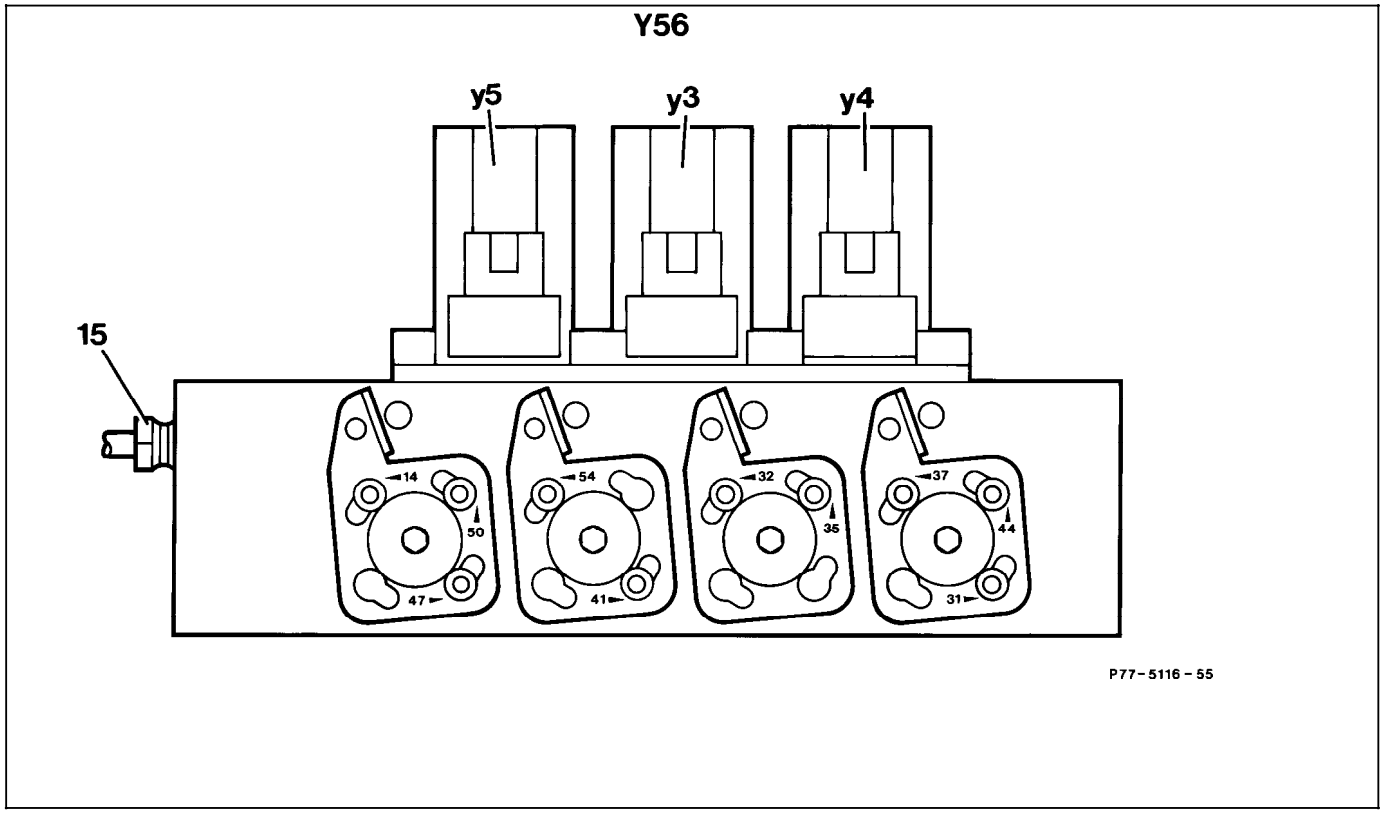
P77-5118-55

Figure 1

Y55y6 Soft top “open” valve
Y55y7 Soft top “close” valve
Y55y8 Fabric bow “raise” valve
Y55y9 Fabric bow “lower” valve

Electrical Test Program - Survey of Electrical Valve Actuation

Left CST valve block
(3 connections) (Y56)



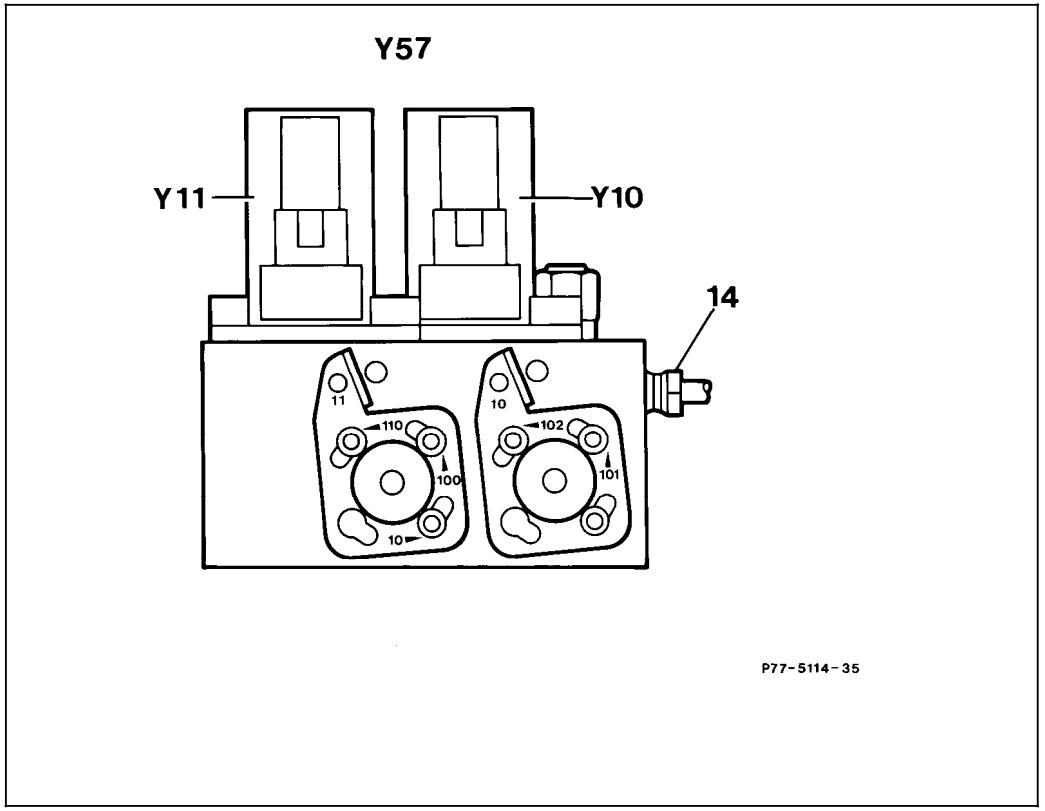
P77-5116-55

Figure 2

Y56y3 Soft top compartment lock valve
Y56y4 Fabric bow lock valve
Y56y5 Soft top compartment cover drive valve

Electrical Test Program - Survey of Electrical Valve Actuation

RB valve block (Y57)



P77-5114-35

Figure 3

Y57y10 Rod side valve
Y57y11 Piston side valve

Electrical Test Program - Survey of Electrical Valve Actuation

Soft top opening sequence	Right CST valve block (Y55)				Left CST valve block (Y56)			RB valve block (Y57)		CST/RB hydraulic unit (A7/5) [1]
Valves actuated during operating sequence	y6	y7	y8	y9	y5	y4	y3	y10	y11	y1
Connection diagram - Socket box to connector X (22, Figure 4), Socket box to connector Z (22, Figure 6)	X 11 1	X 11 2	X 11 3	X 11 4	X 11 5	X 11 8	X 11 9	X 11 10	Z 6 2	Z 6 1
Unlocking front of soft top	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V
Retracting roll bar	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	0–1 V	0–1 V
Unlocking fabric bow	0–1 V	0–1 V [2]	0–1 V	0–1 V	0–1 V	**11–14 V**	0–1 V	**11–14 V**	0–1 V	**11–14 V**
Raising fabric bow	0–1 V	**11–14 V**	**11–14 V**	0–1 V	0–1 V	**11–14 V**	0–1 V	**11–14 V**	0–1 V	**11–14 V**
Unlocking soft top compartment cover	0–1 V	**11–14 V**	**11–14 V**	0–1 V	0–1 V	0–1 V	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Raising soft top compartment cover	0–1 V	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Storing fabric bow	0–1 V	0–1 V [2]	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Opening soft top	**11–14 V**	0–1 V	0–1 V	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Lowering soft top compartment cover	**11–14 V**	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Locking soft top compartment cover	**11–14 V**	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	0–1 V	**11–14 V**	0–1 V	**11–14 V**
Extending roll bar	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	**11–14 V**	0–1 V
Locking front of soft top	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V

[1] CST/RB hydraulic unit main valve (A7/5y1) was eliminated as of chassis end number 837708.

[2] Starting with control module version 3.04, the voltage is 11 - 14 V.

Electrical Test Program - Survey of Electrical Valve Actuation

Soft top closing sequence	Right CST valve block (Y55)				Left CST valve block (Y56)			RB valve block (Y57)		CST/RB hydraulic unit (A7/5) [1]
Valves actuated during operating sequence	y6	y7	y8	y9	y5	y4	y3	y10	y11	y1
Connection diagram - Socket box to connector X (22, Figure 4), Socket box to connector Z (22, Figure 6)	X 11 1	X 11 2	X 11 3	X 11 4	X 11 5	X 11 8	X 11 9	X 11 10	Z 6 2	Z 6 1
Unlocking front of soft top	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V
Retracting roll bar	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	0–1 V	0–1 V
Unlocking soft top compartment cover	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Raising soft top compartment cover	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Closing soft top	0–1 V	**11–14 V**	0–1 V	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Raising fabric bow	0–1 V	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Lowering soft top	0–1 V	**11–14 V**	**11–14 V**	0–1 V	0–1 V	**11–14 V**	**11–14 V**	**11–14 V**	0–1 V	**11–14 V**
Locking soft top compartment cover	0–1 V	**11–14 V**	**11–14 V**	0–1 V	0–1 V	**11–14 V**	0–1 V	**11–14 V**	0–1 V	**11–14 V**
Lowering fabric bow	0–1 V	**11–14 V**	0–1 V	**11–14 V**	0–1 V	0–1 V	0–1 V	**11–14 V**	0–1 V	**11–14 V**
Locking fabric bow	0–1 V	**11–14 V**	0–1 V	**11–14 V**	0–1 V	0–1 V	0–1 V	**11–14 V**	0–1 V	**11–14 V**
Locking front of soft top	0–1 V [3]	**11–14 V**	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V
Extending roll bar	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	0–1 V	**11–14 V**	**11–14 V**	0–1 V

1) CST/RB hydraulic unit main valve (A7/5y1) was eliminated as of chassis end number 837708.

3) Up to control module version 3.04, the voltage is 11 – 14 V.

Hydraulic Test Program - Component Locations

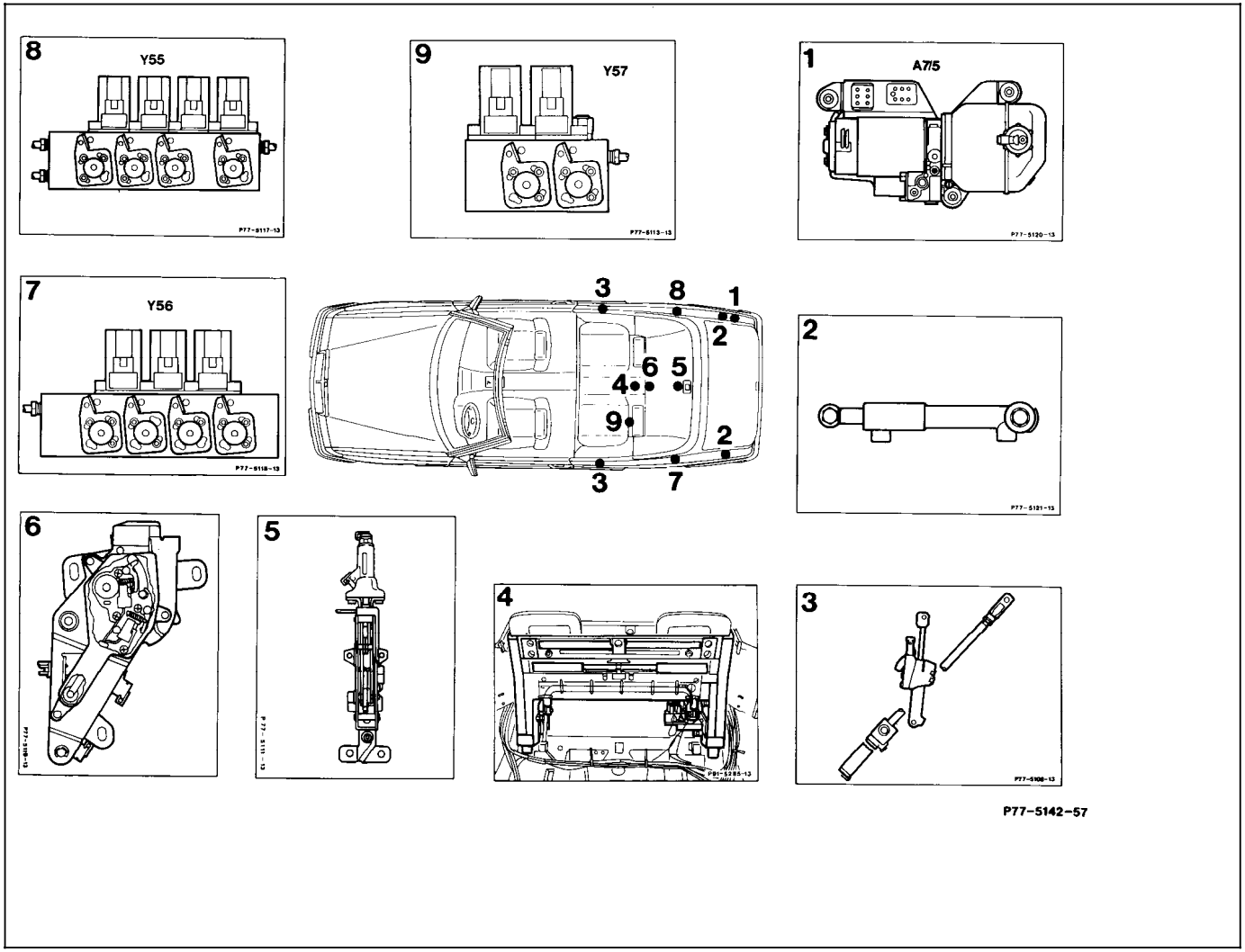


Figure 1

A7/5 CST/RB hydraulic unit (1)
Y55 Right CST valve block (4 connections) (8)
Y56 Left CST valve block (3 connections) (7)
Y57 RB valve block (9)
2 Soft top compartment cover hydraulic cylinder
3 Soft top and fabric bow hydraulic cylinder
4 Roll bar assembly
5 Fabric bow lock
6 Soft top compartment cover lock

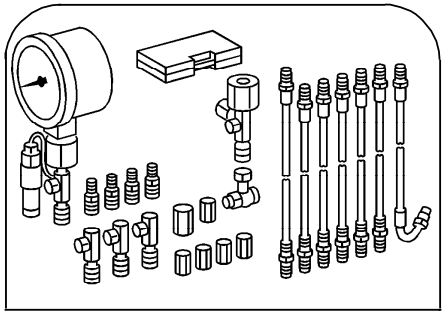
P77-5142-57

Hydraulic Test Program - Preparation for Test

Check and correct soft top/roll bar hydraulic fluid level (Maintenance Manual job no. 7710).

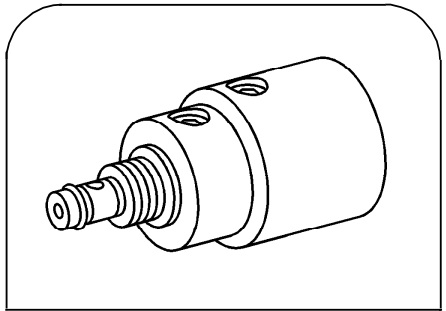
Note:
In order to carry out a thorough inspection when checking for the cause of hydraulic oil loss, remove the trim panels or the rear seat assembly.

Special Tools



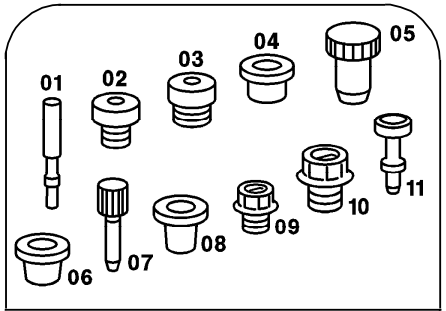
126 589 14 21 00

Tester



129 589 08 63 00

Check valve

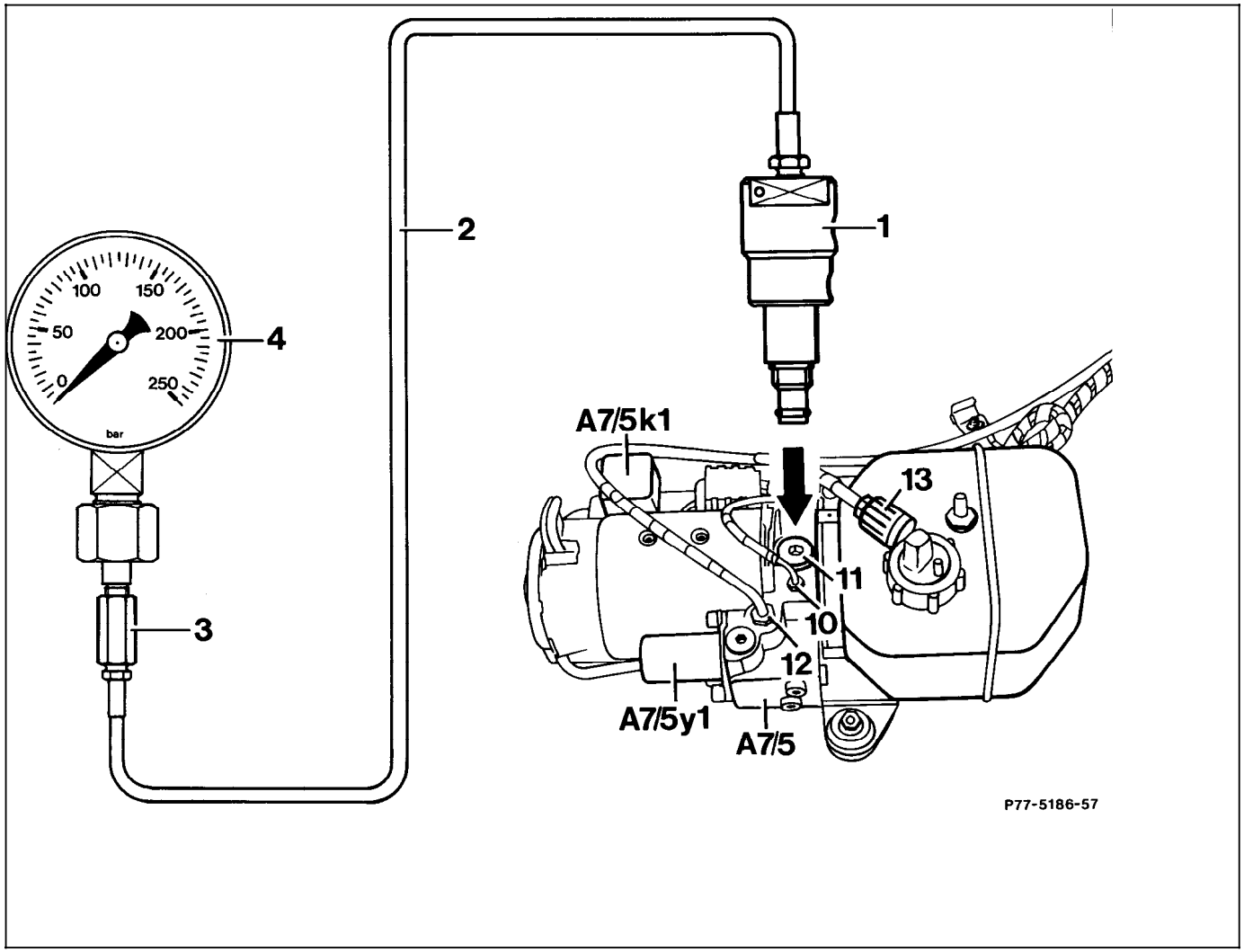


129 589 00 91 00

Set of plugs

Hydraulic Test Program - Test

Connection diagram - Pressure gauge and check valve to hydraulic unit



P77-5186-57

Figure 1

A7/5	CST/RB hydraulic unit
A7/5k1	Relay
A7/5y1	Main valve
1	Check valve
2	Pressure test line
3	Coupling piece
4	Pressure gauge
10	Roll bar hydraulic line
11	Test connection
12	Soft top hydraulic line
13	Return line

Hydraulic Test Program - Test

Test Notes

The following jobs are the same for all test steps:

- Connection of test equipment to hydraulic unit (Figure 1).
  Torque check valve 129 589 08 63 00 to 5 Nm.
- If hydraulic lines need to be disconnected from the valve blocks during pressure tests, the appropriate soft top position (end position of the hydraulic cylinder) must first be ensured.

All the necessary soft top positions can be achieved by using the soft top switch or by moving the soft top by hand (manual operation, Ignition: **OFF**).
The soft top compartment cover can be locked or unlocked by using the emergency tool in the vehicle tool kit (refer to Introduction Manual, Model Year 1993 (USA) Models 124, 129, 140, 201.
In the event of a lock failure, the fabric bow can only be opened by unscrewing the lock pin from inside the vehicle.

Pressure test

⚠**WARNING!**
Keep hands clear of soft top mechanism, windshield frame and soft top compartment cover.

The hydraulic circuits and components responsible for a specific soft top movement can be tested separately.
Disconnected hydraulic lines should be held in a container (connect a transparent hose such as windshield washer hose).
Hydraulic components that leak should be replaced. During pressure tests, the valve block connections **must** be plugged with plug 129 589 00 91 01.

If hydraulic components need to be replaced, the disconnected hydraulic lines must be plugged with plug 129 589 00 91 07, while the connections of valve blocks and hydraulic cylinders must be plugged **immediately** using plug 129 589 00 91 11 to prevent the possible entry of dirt.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	**Check system pressure**	Connect pressure gauge according to connection diagram (Figure 1).	**Soft top completely closed** Ignition: **ON** **Press** and hold RB switch to retract roll bar. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec**. **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** ⇒ 2.0.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 2.0	**Test hydraulic unit**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 10, 12 (Figure 1) close off using plug 129 589 00 91 02/03.	**Soft top completely closed** Ignition: **ON** Press and hold RB switch to retract roll bar. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	175 – 195 bar	**<175 bar**: if the pressure displayed on the pressure gauge does **not** drop, replace hydraulic unit. If the pressure displayed on the pressure gauge does drop, the Main valve (A7/5y1, Figure 1) is leaking.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.0	**Retract roll bar (Figure 7)**	Connect pressure gauge according to connection diagram (Figure 1).	**Roll bar extended.** Ignition: **ON** Press and hold RB switch to retract roll bar. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar**: ⇒ 3.1.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.1	Retract roll bar (Figure 7)	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line No. 101, 110 from valve block (Y57, Figure 3). Close connection with plug 129 589 00 91 01.	**Roll bar extended.** Ignition: **ON** Press and hold RB switch to retract roll bar. Have an assistant unplug relay (A7/5k1) (Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar**: Valve block (Y57, Figure 6) Left or right locking pawl (Figure 6, Position 4a, 4b). **If nominal value is attained:** Roll bar hydraulic cylinder (Figure 6, Position 4).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 4.0	**Extend roll bar (Figure 8)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line No. 101, 110 from valve block (Y57, Figure 3). Close connection with plug 129 589 00 91 01.	**Roll bar retracted.** Ignition: **ON** Press and hold RB switch to extend roll bar. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar**: Valve block (Y57, Figure 6). **If nominal value is attained:** Roll bar hydraulic cylinder (Figure 6, Position 4).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.0	**Opening fabric bow lock (Figure 9)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 44, 47 from Valve block (Y56, Figure 4) close connection using plug 129 589 00 91 01 Pull plug off valve block (Y55y7 and Y55y8, Figure 2).	**Starting position: Soft top completely closed.** Front latches unlocked, soft top frame pushed up in front. Unscrew fabric bow lock pins from inside vehicle, set fabric bow upright, open soft top compartment cover. Remove trim panels in soft top compartment, soft top compartment cover latched, fabric bow lowered. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar**: ⇒ 5.1. **If nominal value is attained:** Fabric bow lock (Figure 6, Position VB).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.1	Opening fabric bow lock (Figure 9)	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 31 from valve block (Y56, Figure 4) close connection using plug 129 589 00 91 01. Connect hydraulic lines no. 44, 47 leave valves (Y55y7 and Y55y8) disconnected.	Front latches unlocked, soft top frame pushed up in front, soft top compartment cover latched, fabric bow lowered. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec**. Keep switch depressed an additional **5 sec**. **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** ⇒ 5.2. **If nominal value is attained:** Soft top compartment cover lock hydraulic cylinder (Figure 6, Position VD).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.2	Opening fabric bow lock (Figure 9)	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 35, 37 from valve block (Y56, Figure 4), close connection using plug 129 589 00 91 01. Connect hydraulic line no. 31, leave valves (Y55y7 and Y55y8) disconnected.	Front locks open, soft top closed, front of soft top frame pushed up, soft top compartment cover locked, fabric bow lowered. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** ⇒ 5.4. **If nominal value is attained:** ⇒ 5.3.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.3	Opening fabric bow lock (Figure 9)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 35, leave valves (Y55y7 and Y55y8) disconnected.	Front locks open, soft top closed, front of soft top frame pushed up, soft top compartment cover locked, fabric bow lowered. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Left soft top compartment cover hydraulic cylinder (Figure 6, Position 2). **If nominal value is attained:** Right soft top compartment cover hydraulic cylinder (Figure 6, Position 3).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.4	Opening fabric bow lock (Figure 9)	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 41 from valve block (Y55, Figure 2), close connection using plug 129 589 00 91 01. Connect hydraulic line no. 35, 37, leave valves (Y55y7 and Y55y8) disconnected.	Front locks open, soft top closed, front of soft top frame pushed up, soft top compartment cover locked, fabric bow lowered. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** Valve block (Y55, Figure 6). **If nominal value is attained:** Valve block (Y56, Figure 6).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.0	**Raising fabric bow (Figure 10)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 41 from valve block (Y55, Figure 2) close connection using plug 129 589 00 91 01. Disconnect plug from valve (Y55y7).	Front locks open, soft top closed, front of soft top frame pushed up, soft top compartment cover locked, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** ⇒ 6.1. **If nominal value is attained:** ⇒ 5.0.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.1	Raising fabric bow (Figure 10)	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 85, 87 from valve block (Y55, Figure 2), close connection using plug 129 589 00 91 01. Leave valve (Y55y7) and hydraulic line no. 41 disconnected.	Front locks open, soft top closed, front of soft top frame pushed up, soft top compartment cover locked, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** Valve block (Y55, Figure 6). **If nominal value is attained:** ⇒ 6.2.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.2	Raising fabric bow (Figure 10)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 85, leave no. 41 and valve (Y55y7) disconnected.	Front locks open, soft top closed, front of soft top frame pushed up, soft top compartment cover locked, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Left fabric bow hydraulic cylinder (Figure 6, Position 5). **If nominal value is attained:** Right fabric bow hydraulic cylinder (Figure 6, Position 6).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 7.0	**Unlocking soft top compartment cover lock (Figure 11)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 31, 32 from valve block (Y56, Figure 4), close connection using plug 129 589 00 91 01. Disconnect connector from valve (Y55y7 and Y55y8, Figure 2).	Front locks open, soft top closed, front of soft top frame pushed up, fabric bow raised, soft top compartment cover locked. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** Valve block (Y56, Figure 6). **If nominal value is attained:** Soft top compartment cover lock (Figure 6, Position VD).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 8.0	**Raising soft top compartment cover (Figure 12)**				**Hydraulic fault not possible.** Check adjustment of soft top compartment cover, check for smooth operation of cover hinges.
⇒ 9.0	**Lowering fabric bow (Figure 13)**	⇒ 19.0	⇒ 19.0	120 – 195 bar	⇒ 19.0.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.0	**Opening soft top (Figure 14)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 41, 61, 63 from valve block (Y55, Figure 2), close connection using plug 129 589 00 91 01.	Soft top compartment cover raised. Lower soft top into compartment. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Valve block (Y55, Figure 6). **If nominal value is attained:** ⇒ 10.1.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.1	Opening soft top (Figure 14)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 63, leave no. 41, 61 disconnected.	Soft top compartment cover raised, lower soft top into compartment. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**< 120 bar:** Left soft top drive hydraulic cylinder (Figure 6, Position 7). **If nominal value is attained:** Right soft top drive hydraulic cylinder (Figure 6, Position 8).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 11.0	**Closing soft top compartment cover (Figure 15)**	Connect pressure gauge according to connection diagram (Figure 1)	Front locks open, soft top lowered into soft top compartment, soft top compartment cover raised. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	⇒ 5.2

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 12.0	**Locking soft top compartment cover lock (Figure 16)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 31, 47 from valve block (Y56, Figure 4), close connection using plug 129 589 00 91 01. Disconnect connectors from valves (Y56y3 and Y56y4, Figure 4, Y55y6, Figure 2).	Soft top lowered into soft top compartment, soft top compartment cover raised. Ignition: **ON** Press and hold power soft top switch to open soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**< 120 bar:** ⇒ 5.4 **If nominal value is attained:** Soft top compartment cover lock hydraulic cylinder (Figure 5, Position VD).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 13.0	**Unlocking soft top compartment cover lock (Figure 11)**	Connect pressure gauge according to connection diagram (Figure 1).	**Starting position: Soft top opened completely.** **⇒ 1.0 and 2.0 carried out.**		Soft top compartment cover lock pin binding. Adjust lock pin. Soft top compartment cover lock defective.
⇒ 14.0	**Raising soft top compartment cover (Figure 12)**				**Hydraulic fault not possible.** Check adjustment of soft top compartment cover, check for smooth operation of cover hinges.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.0	**Closing soft top (Figure 17)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 70, 72 from valve block (Y55, Figure 2), close connection using plug 129 589 00 91 01. Disconnect connector from valve (Y55y8, Figure 2).	Front locks open, soft top compartment cover raised. Close soft top manually, front of soft top frame pushed up, fabric bow lowered. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec**. Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** ⇒ 15.2. **If nominal value is attained:** ⇒ 15.1.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.1	Closing soft top (Figure 17)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 72, leave no. 70 and valve (Y55y8) disconnected. Disconnect connector from valve (Y55y8, Figure 2).	Front locks open, soft top compartment cover raised, soft top closed, soft top frame pushed up in front, fabric bow lowered. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec**. Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Left soft top hydraulic actuating cylinder (Figure 6, Position 7). **If nominal value is attained:** Right soft top hydraulic actuating cylinder (Figure 6, Position 8).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.2	Closing soft top (Figure 17)	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 41 from valve block (Y55, Figure 2) close connection using plug 129 589 00 91 01. connect valve (Y55y8).	Front locks open, soft top closed, soft top frame pushed up in front, soft top compartment cover raised, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec**. Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Valve block (Y55, Figure 6). **If nominal value is attained:** Valve block (Y56, Figure 6).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 16.0	**Raising fabric bow (Figure 10)**	Connect pressure gauge according to connection diagram (Figure 1) Disconnect hydraulic line no. 41, 85, 87 from valve block (Y55, Figure 2), close connection using plug 129 589 00 91 01.	Front locks open, soft top closed, soft top frame pushed up in front, soft top compartment cover raised, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** ⇒ 15.2. **If nominal value is attained:** ⇒ 16.1.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 16.1	Raising fabric bow (Figure 10).	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 85, leave no. 87 disconnected.	Soft top open at front, soft top closed, soft top frame pushed up in front, soft top compartment cover raised, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Left fabric bow hydraulic cylinder (Figure 6, Position 5). **If nominal value is attained:** Right fabric bow hydraulic cylinder (Figure 6, Position 6).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 17.0	**Lowering soft top compartment cover (Figure 15)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 35, 37 from valve block (Y56, Figure 4), close connection using plug 129 589 00 91 01. Disconnect connector from valve (Y55y7 and Y55y8, Figure 2) .	Front locks open, soft top closed, soft top frame pushed up in front, fabric bow raised, soft top compartment cover raised. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	 120 – 195 bar	**<120 bar:** ⇒ 15.2. **If nominal value is attained:** ⇒ 17.1.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 17.1	Lowering soft top compartment cover (Figure 15)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 35, hold no. 37 in a container and leave valve (Y55y7 and Y55y8) disconnected.	Front locks open, soft top closed, soft top frame pushed up in front, fabric bow raised, soft top compartment cover lowered. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec**. **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Left soft top compartment cover hydraulic cylinder (Figure 6, Position 3). **If nominal value is attained:** Right soft top compartment cover hydraulic cylinder (Figure 6, Position 2).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.0	**Locking soft top compartment cover lock (Figure 16)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 31, 35, 37 from valve block (Y56, Figure 4), close connection using plug 129 589 00 91 01. Disconnect connector from valve (Y56y3, Figure 4).	Front locks open, soft top closed, soft top frame pushed up in front, fabric bow raised, soft top compartment cover raised. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** ⇒ 15.2. **If nominal value is attained:** ⇒ 18.1.

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.1	Locking soft top compartment cover lock (Figure 16)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 31, Leave no. 35, 37 and valve (Y56y3) disconnected. Disconnect connector from valve (Y55y9, Figure 2).	Front locks open, soft top closed, soft top frame pushed up in front, fabric bow raised, soft top compartment cover raised.		**<120 bar:** Soft top compartment cover lock hydraulic cylinder (Figure 6, Position VD). **If nominal value is attained:** ⇒ 18.2

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.2	Locking soft top compartment cover lock (Figure 16)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 35, hold no. 37 in a container and leave valve (Y56y3) disconnected.	Front locks open, soft top closed, soft top frame pushed up in front, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to close soft top. ⚠ **Soft top compartment cover will close.** Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Left soft top compartment cover hydraulic cylinder (Figure 6, Position 2). **If nominal value is attained:** Right soft top compartment cover hydraulic cylinder (Figure 6, Position 3).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 19.0	**Lowering fabric bow (Figure 13)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect hydraulic line no. 41, 94, 96 from valve block (Y55, Figure 2), close connection using plug 129 589 00 91 01.	Front locks open, soft top closed, soft top frame pushed up in front, soft top compartment cover raised, soft top compartment cover locked, fabric bow raised. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** ⇒ 15.2 **If nominal value is attained:** ⇒ 19.1

Hydraulic Test Program - Test

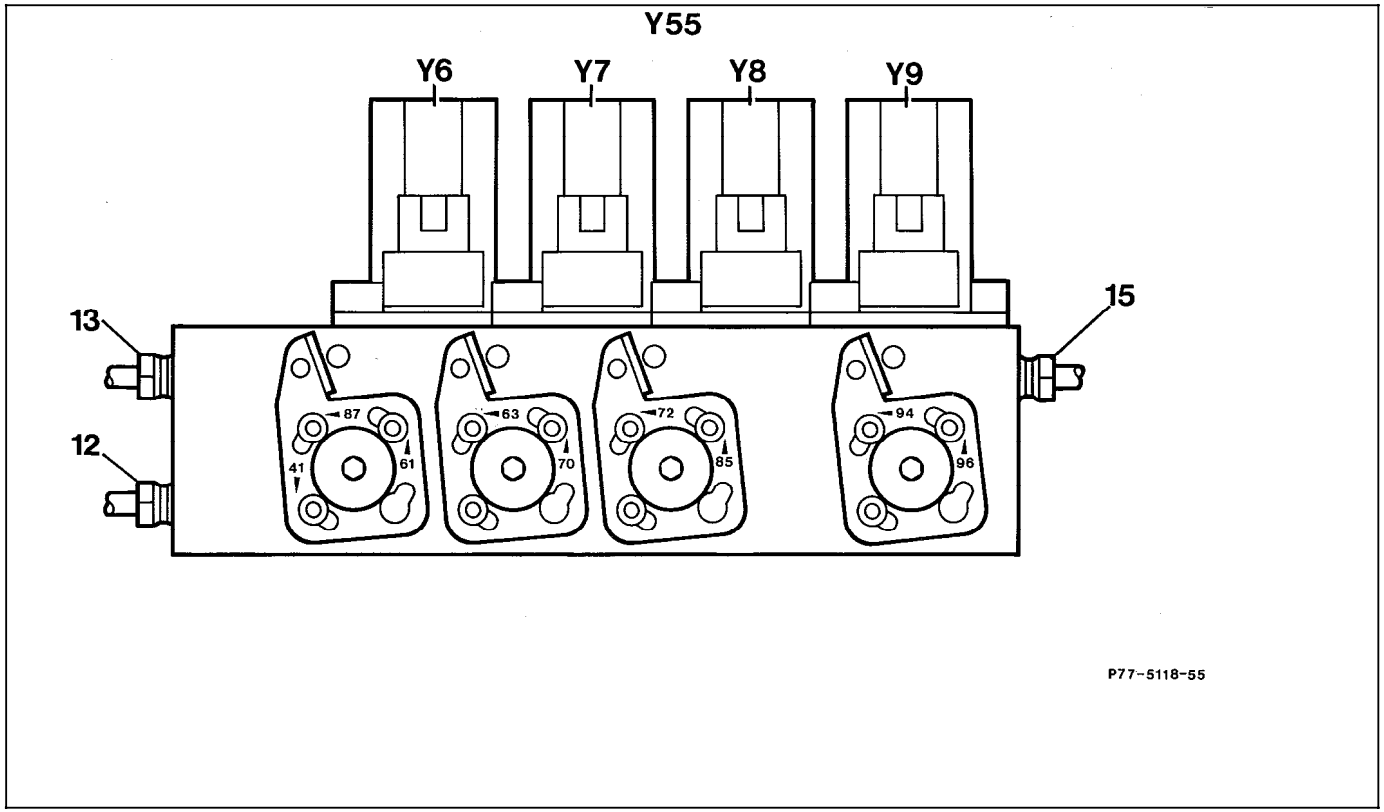
Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 19.1	Lowering fabric bow (Figure 13)	Connect pressure gauge according to connection diagram (Figure 1). Connect hydraulic line no. 94, leave no. 41 disconnected, hold no. 96 in a container.	Front locks open, soft top closed, soft top frame pushed up in front, soft top compartment cover locked, fabric bow lowered. Place wooden blocks (2 pieces, 80mm x 60mm x 20mm) between the soft top compartment cover and the fabric bow next to the latches on the left and right. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar:** Left fabric bow hydraulic cylinder (Figure 6, Position 5). **If nominal value is attained:** Right fabric bow hydraulic cylinder (Figure 6, Position 6).

Hydraulic Test Program - Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 20.0	**Locking fabric bow lock (Figure 18)**	Connect pressure gauge according to connection diagram (Figure 1). Disconnect connector from valve (Y55y9, Figure 2).	Front locks open, soft top closed, soft top frame pushed up in front, fabric bow raised, soft top compartment cover locked, fabric bow lock opened. Ignition: **ON** Press and hold power soft top switch to close soft top. Have an assistant unplug relay (A7/5k1, Figure 1) **after 5 sec.** Keep switch depressed an **additional 5 sec.** **Read test pressure:** **Release test pressure:** Press soft top switch briefly several times.	120 – 195 bar	**<120 bar**: Hydraulic cylinder fabric bow lock (Figure 6, Position VB). **If nominal value is attained:** Lock mechanism, Lock pin improperly adjusted.

Hydraulic Test Program - Test

Right CST valve block (Y55)



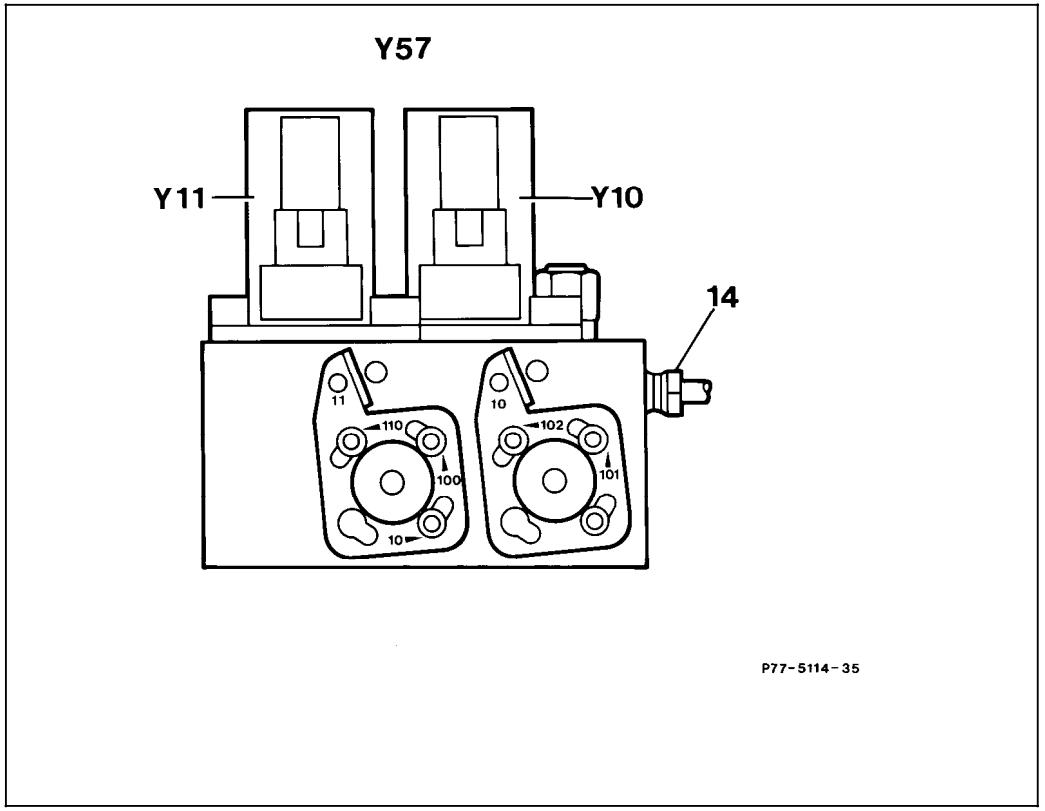
P77-5118-55

Figure 2

Y55y6 Soft top “open” valve
Y55y7 Soft top “close” valve
Y55y8 Fabric bow “raise” valve
Y55y9 Fabric bow “lower” valve

Hydraulic Test Program - Test

RB valve block (Y57)



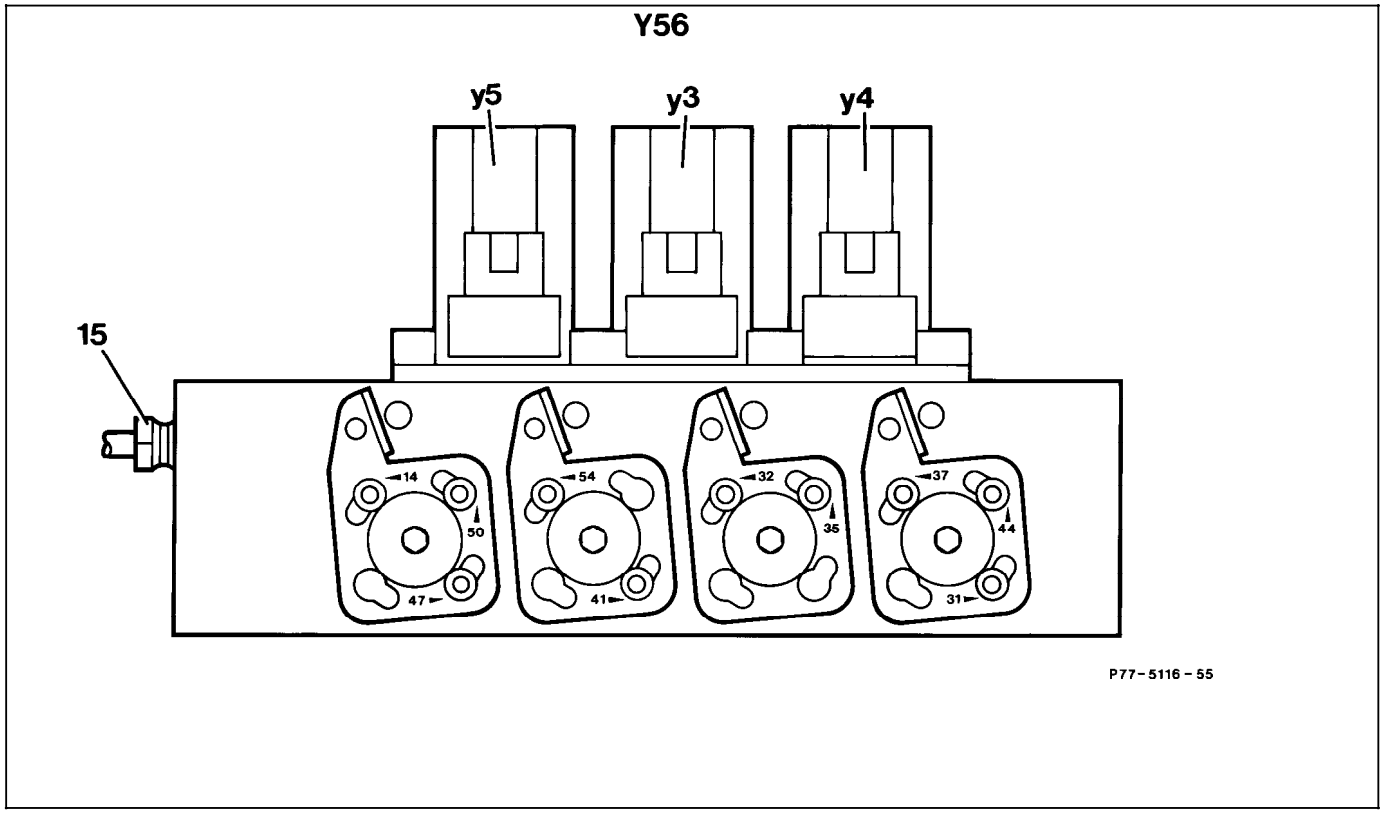
P77-5114-35

Figure 3

Y57y10 Rod side valve
Y57y11 Piston side valve

Hydraulic Test Program - Test

Left CST valve block (Y56)



P77-5116-55

Figure 4
Y56y3 Soft top compartment lock valve
Y56y4 Fabric bow lock valve
Y56y5 Soft top compartment cover drive valve

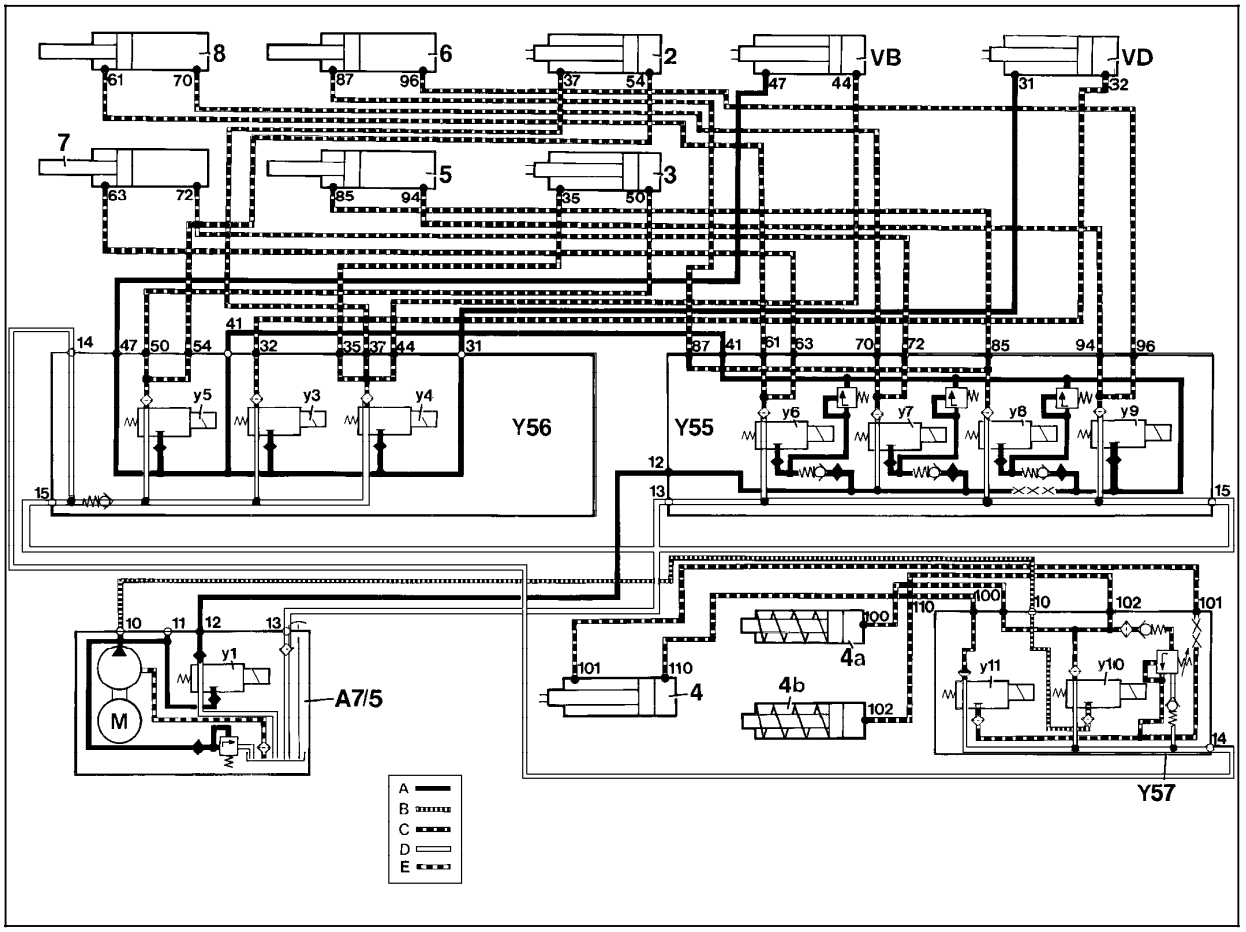
Hydraulic Test Program - Test

Schematic diagram, hydraulic actuation (soft top closed, roll bar retracted)

Soft top/Roll bar

Figure 5

VD	Soft top compartment cover lock
VB	Fabric bow lock
Y55	Right CST valve block
Y56	Left CST valve block
Y57	RB valve block
A7/5	CST/RB hydraulic unit
2/3	Hydraulic cylinder soft top compartment cover, left/right
4	RB hydraulic cylinder
4a/4b	Locking pawl hydraulic cylinder, left/right
5/6	Fabric bow hydraulic cylinder, left/right
7/8	Soft top hydraulic cylinder, left/right
A	Soft top hydraulic circuit
B	Roll bar hydraulic circuit
C	Control pressure line
D	Return line
E	Suction line



P77-5156-06x

Hydraulic Test Program - Test

Soft top/Roll bar

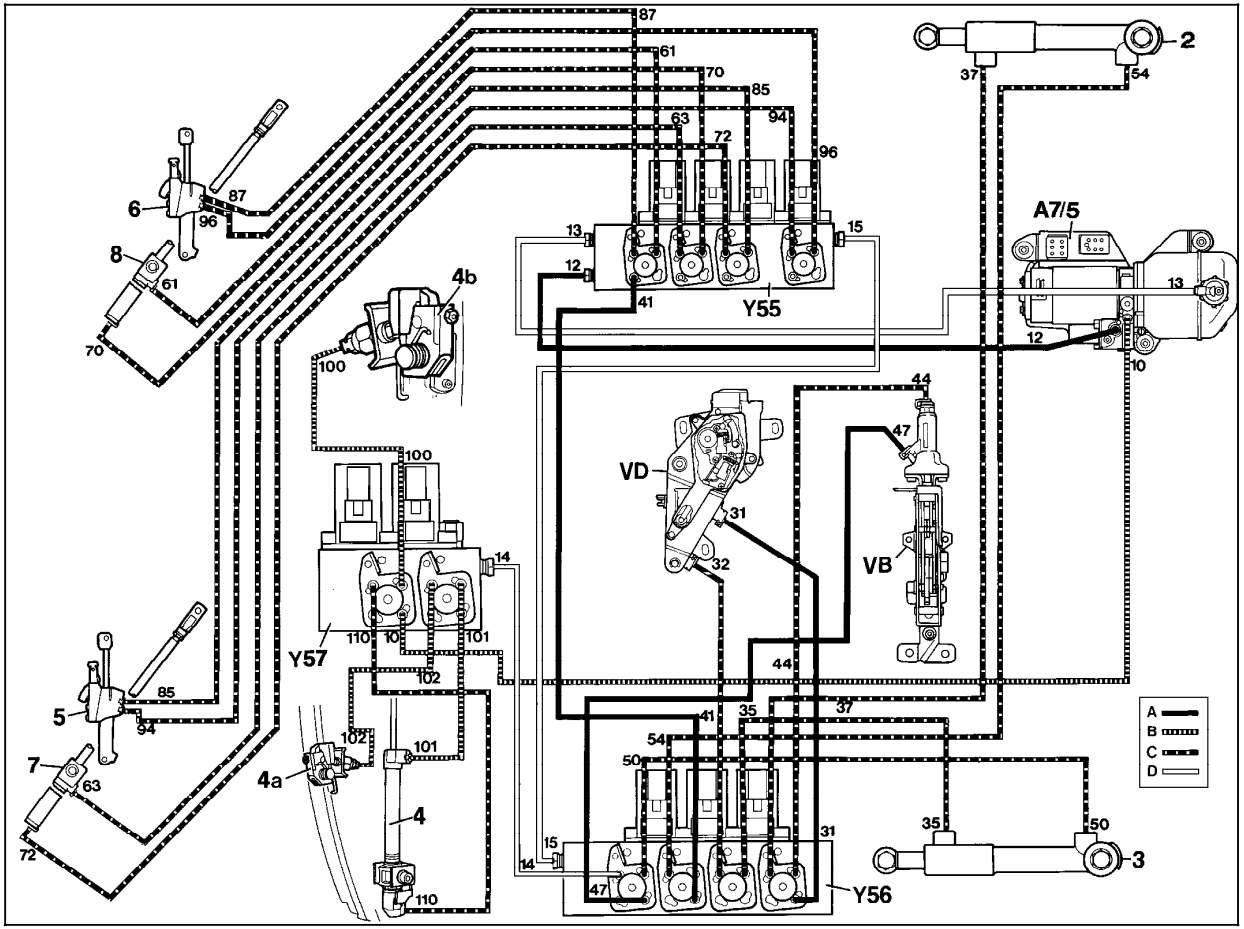
Figure 6

VD Soft top compartment cover lock
VB Fabric bow lock

Y55 Right CST valve block
Y56 Left CST valve block
Y57 RB valve block

A7/5 CST/RB hydraulic unit
2/3 Hydraulic cylinder
soft top compartment cover, left/right
4 RB hydraulic cylinder
4a/4b Locking pawl hydraulic cylinder, left/right
5/6 Fabric bow hydraulic cylinder, left/right
7/8 Soft top hydraulic cylinder, left/right

A Soft top hydraulic circuit
B Roll bar hydraulic circuit
C Control pressure line
D Return line



P77-5157-06x