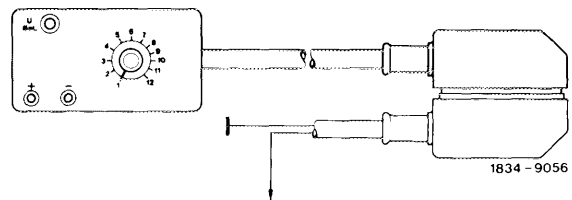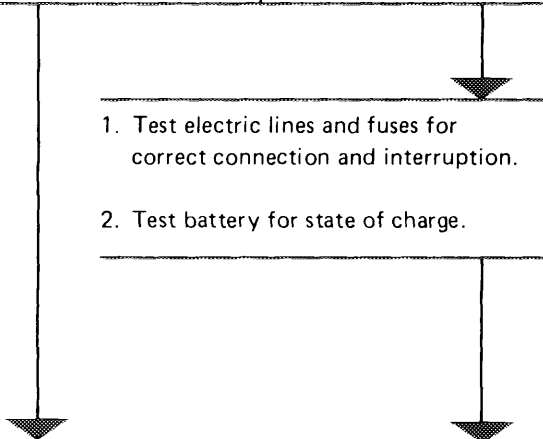**Note**

1. During electric test on 2-point coupling of mono-valve (with voltmeter, test lamp), be sure to avoid a short, since this may destroy the electronic switching unit for temperature control.

2. Perform test program in the event of unknown causes of trouble, customer complaints which are not clearly expressed, and following repairs for guaranteeing all functions.

3. Prior to starting the following test, check all fuses for automatic climate control, auxiliary fan and blower motor. It is additionally recommended to perform a manual and optional function test of air flaps according to 83—601.
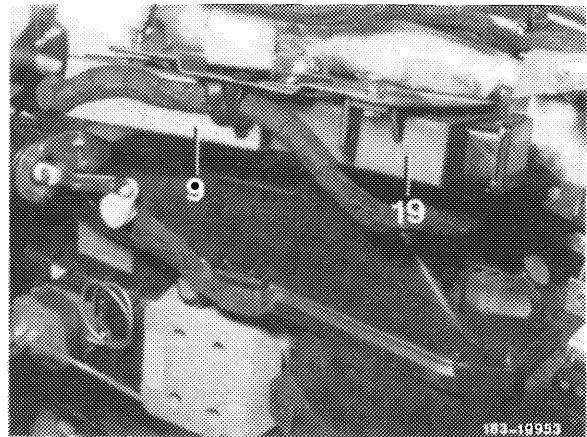
9 Electronic control unit
   for temperature control
19 Electronic switching unit
   for blower control

Test

1834 – 9056

Testing voltage supply and connecting lines 1 and 6	
Switch-on ignition:	
Position of adapter switch	Nominal value
1	>11 V

Nominal value correct	Nominal value wrong

1. Test electric lines and fuses for correct connection and interruption.

2. Test battery for state of charge.

Wiring diagram for test step 1 with adapter

9 Electronic switching unit for temperature control
10 Fusebox

1832-10424

0,75
br
1

0,75 sw/rt
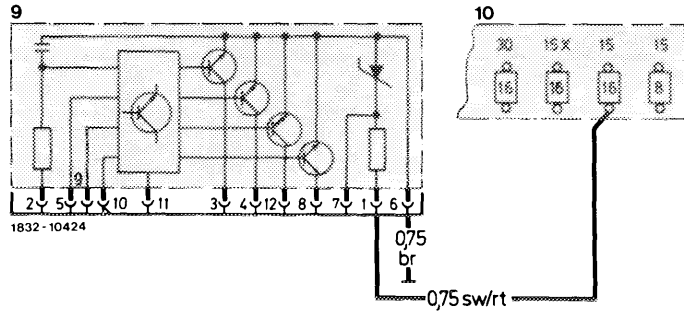
Testing in-car temperature sensor (7)

Remove 2-point coupling from in-car tempera-
ture sensor (7) and connect additional line from
adapter to in-car temperature sensor and to
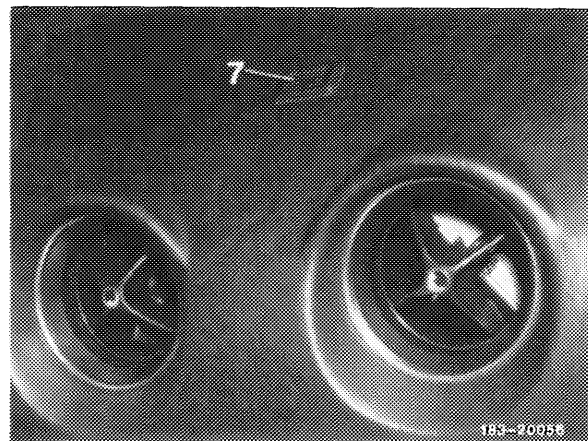multimeter (volt-ohmmeter).

Disconnect battery, switch-on ignition.

Ambient temperature	Nominal value $\pm 0.5\,\text{k}\Omega$
15 °C	15.7 kΩ
25 °C	10.0 kΩ
35 °C	6.5 kΩ
60 °C	2.5 kΩ

Nominal value correct	Nominal value wrong

Replace in-car temperature sensor.

Testing connecting lines 6 and 10

Connect 2-point coupling of auxiliary harness from in-car temperature sensor. Connect plug of additional line/adapter to 2-point coupling from harness and bridge 2-point coupling from auxiliary harness.
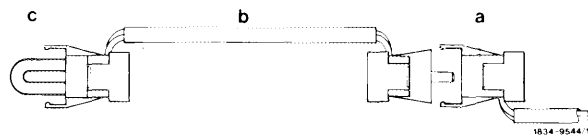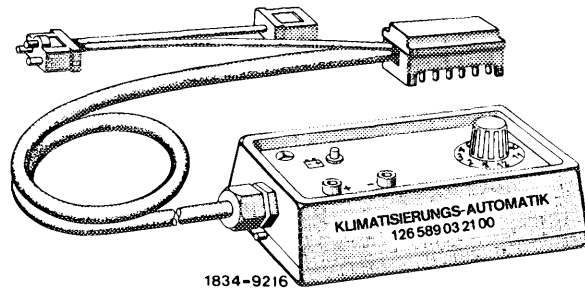
Disconnect battery, switch-on ignition

Position of adapter switch	Nominal value
2	0 Ω

| Nominal value correct	Nominal value wrong

1834-9216

1. Check electric lines for correct connection.

2. Replace control unit.

a Coupling from harness in-car sensor.
b Additional line from adapter
c Bridge

1834-9544/1

Wiring diagram for test step 2 with adapter

7 In-car temperature sensor
9 Electronic switching unit for temperature control

0,75 sw/bl

0,75 br

0,75 br

1832-10425

183-20057
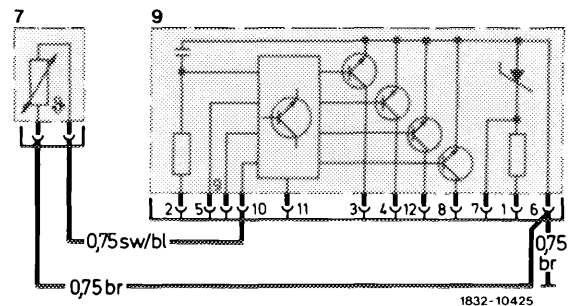
Testing temperature sensor (6) for heat exchanger and connecting lines 6 and 9

Disconnect additional line/adapter and plug 2-point coupling for in-car temperature sensor on again.

Disconnect battery, switch-on ignition.

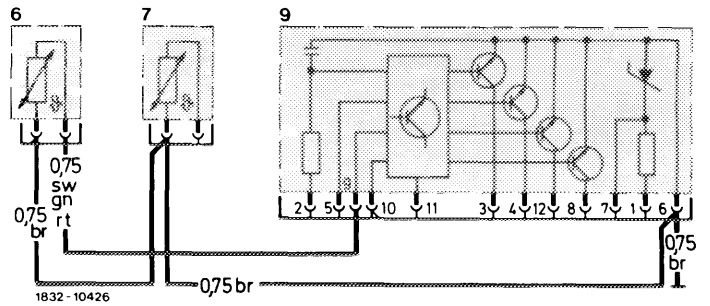| Position of adapter switch	Ambient temperature heat exchanger	Nominal value ± 0.5 kΩ
3	15 °C	15.7 kΩ
	25 °C	10.0 kΩ
	35 °C	6.5 kΩ
	80 °C operating temperature	1.5 kΩ

Nominal value correct	Nominal value wrong

1. Check electric lines for correct connection.

2. Replace temperature sensor for heat exchanger.
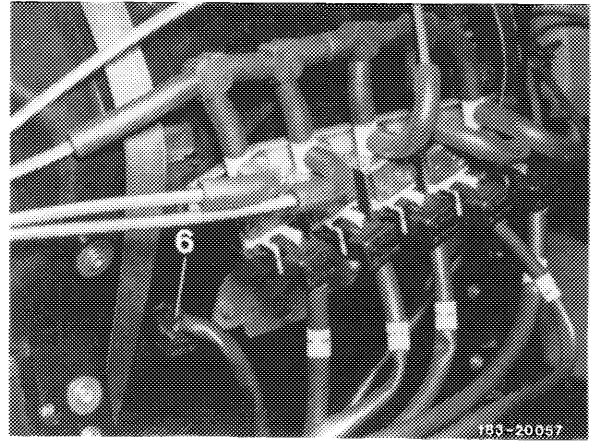
Wiring diagram for test step 3 with adapter

6   Temperature sensor for heat exchanger
7   In-car temperature sensor
9   Electronic switching unit for temperature control

0,75 sw gn rt
0,75 br
0,75 br
2 5 10 11   3 4 12 8 7 1 6
0,75 br
1832-10426

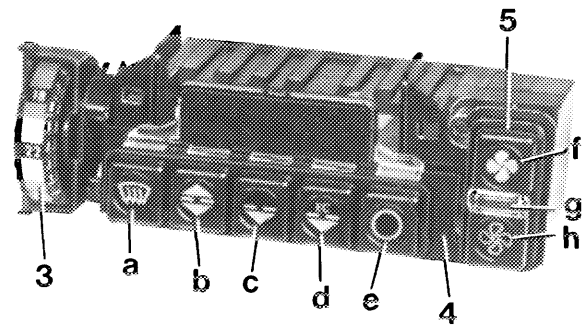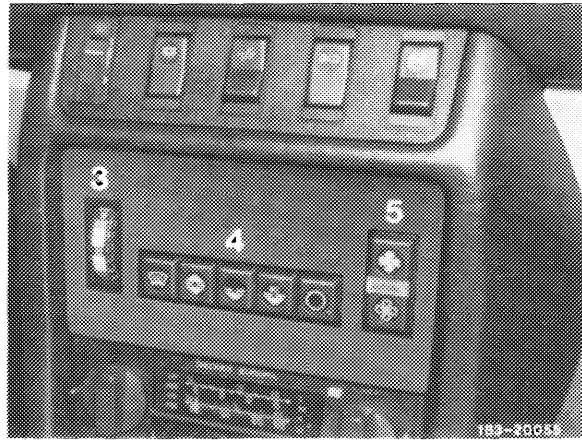**Testing temperature dial (3) and connecting lines 5 and 6**

Disconnect battery, switch-on ignition.
Function selection button "c" pushed.

Position of adapter switch	Position of temperature dial	Nominal value ±0.5 kΩ
4	"MIN" (engaged)	1.6 kΩ
	22 °C	3.15 kΩ
	"MAX" (engaged)	1.6 kΩ

Nominal value correct	Nominal value wrong

183-17660/1

1. Check electric lines for correct connection.

2. Connect new temperature dial, if test step 7 also shows deviating values.

3. Replace pushbutton switching unit.
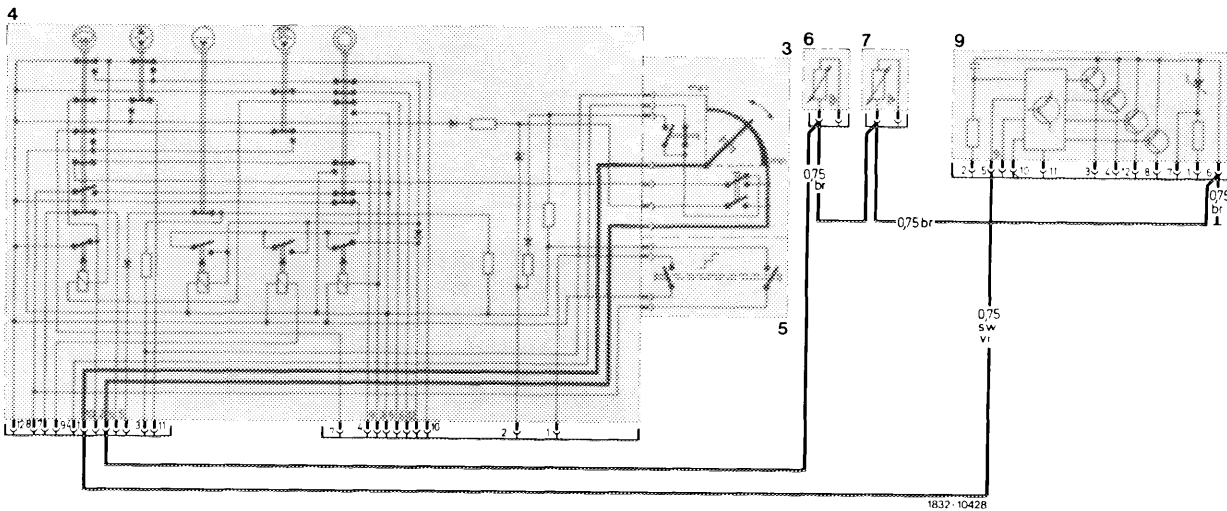
1832-10428

Wiring diagram for test step 4 with adapter

| 3	Temperature dial	4	Pushbutton switching unit	6	Temperature sensor for heat exchanger
		a	Defrosting	7	In-car temperature sensor
		b	Overall ventilation	9	Electronic switching unit for temperature control
		c	Normal adjustment (air conditioning on)		
		d	EC (air conditioning off)		
		e	Off		

1834-9216

Testing electromagnetic coupling (26) and connecting lines 2 and 6 via switchover valve 8

Disconnect battery, switch-on ignition.

Position of adapter switch	Nominal value ± 1 Ω
5	4 Ω

Nominal value correct	Nominal value wrong

1. Check electric lines for correct connection.

2. Test switchover valve (8) for ground connection (only if readout is approx. 0 Ω).

3. Pressure switch refrigerant compressor no passage or refrigerant charge too low (only with readout ∞).

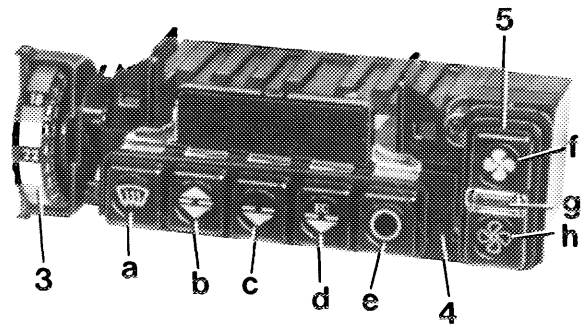4. Replace electromagnetic coupling.

1832-10427
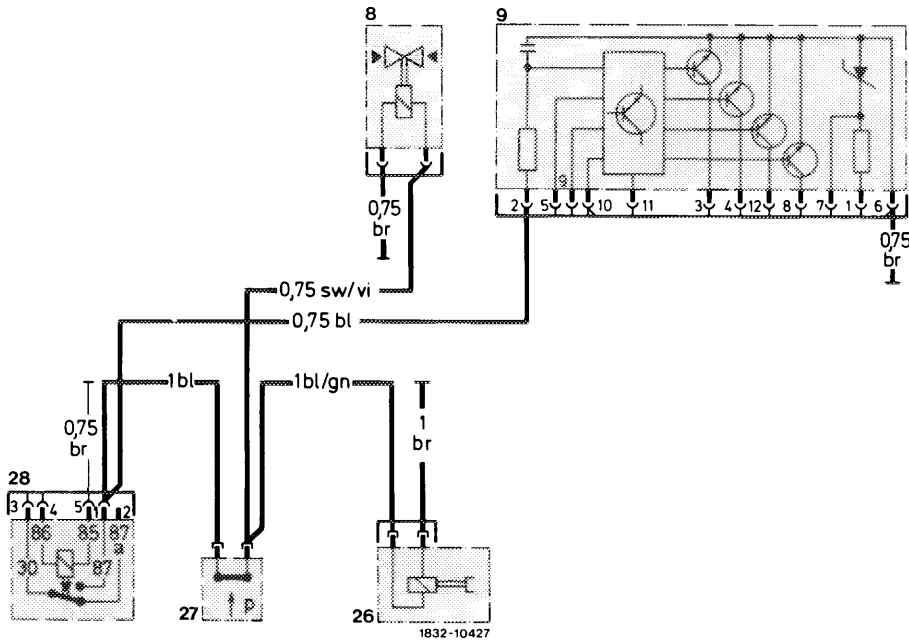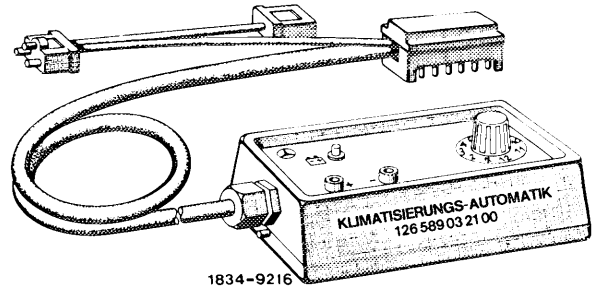
Wiring diagram for test step 5 with adapter

 8 Switchover valve for rpm stabilization
 9 Electronic switching unit for temperature control
26 Electromagnetic coupling-refrigerant compressor
27 Pressure switch refrigerant compressor
28 Relay refrigerant compressor

183-17660/1

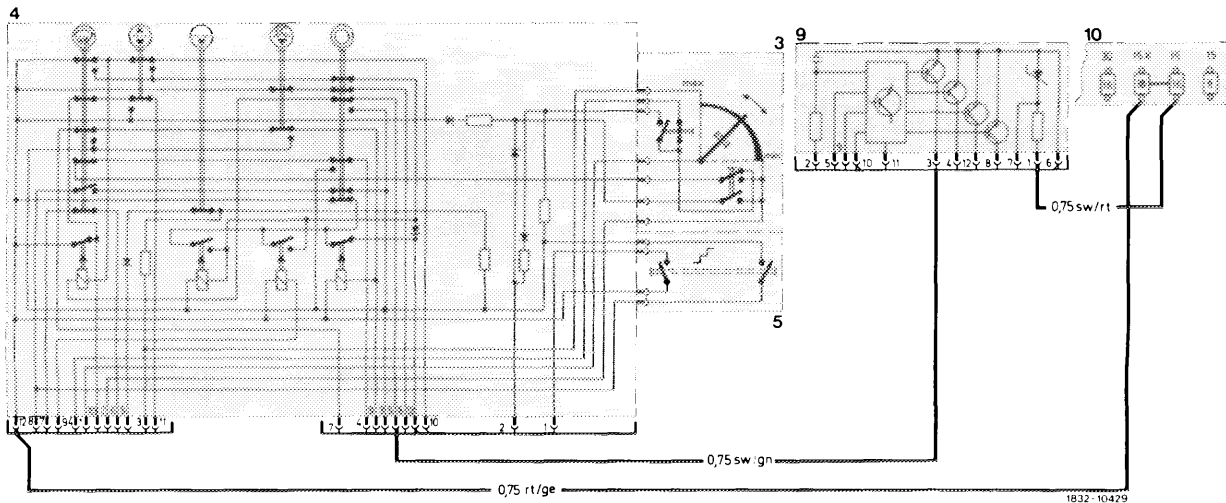|	Testing function selection "c" or "e", as well as connecting lines 1 and 3	

Disconnect battery, switch-on ignition.

Position of adapter switch	Function selection	Nominal value ±30 Ω
6	"c" pushed "e" pushed	80 Ω ∞

1. Check electric lines for correct connection.

2. Renew pushbutton switch unit.
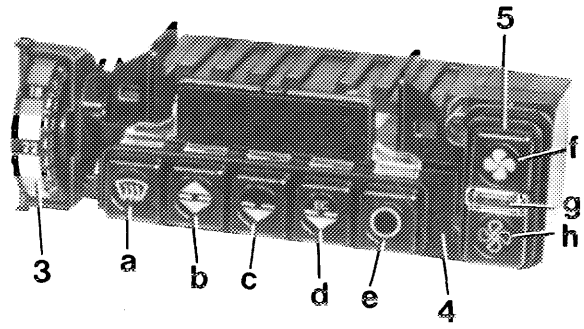

1832-10429

Wiring diagram for test step 6 with adapter

4 Pushbutton switch unit
  a Defrosting
  b Top and bottom
  c Normal position (air conditioning on)
  d EC (air conditioning off)
  e Off

9 Electronic switching unit for temperature control
10 Fuse box

Testing temperature dial (3) and connecting lines 5 and 7

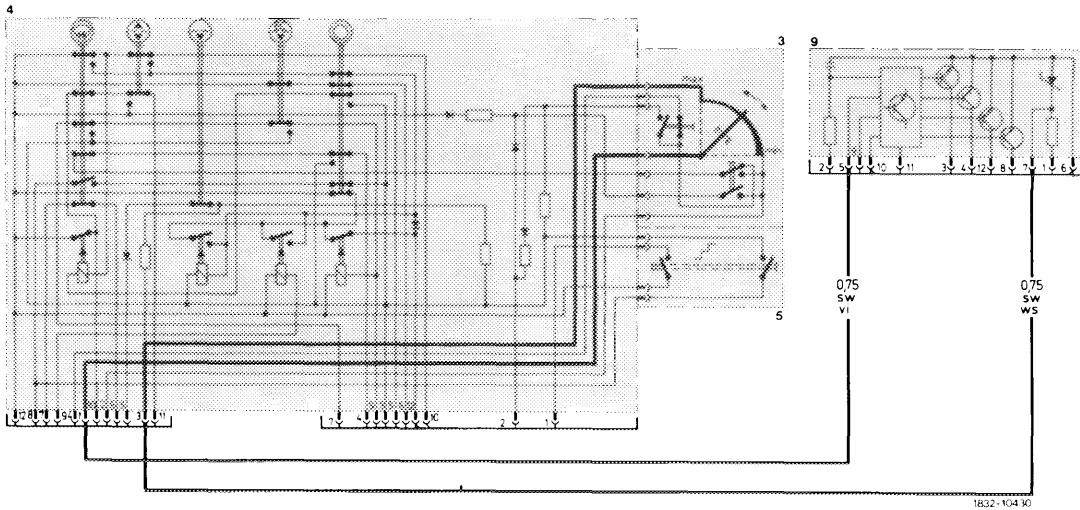**Disconnect battery, switch-on ignition.**
Push function selection button "c".

Position of adapter switch	Position of temperature dial	Nominal value ± 1.5 kΩ
7	"MIN" (engaged)	2.0 kΩ
	22 °C	3.5 kΩ
	"MAX" (engaged)	2.0 kΩ

Nominal value correct	Nominal value wrong

183-17660/1

1. Check electric lines for correct connection.

2. Renew temperature dial (potentiometer).

3. Renew pushbutton switch unit.

1832-104 10

Wiring diagram for test step 7 with adapter

3 Temperature dial

4 Pushbutton switch unit
  a Defrosting
  b Top and bottom
  c Normal adjustment
     (air conditioning on)
  d EC (air conditioning off)
  e Off

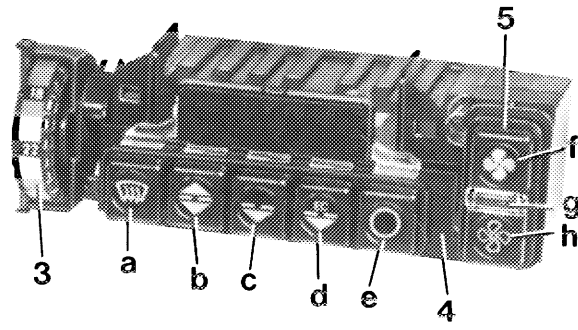9 Electronic switching unit for temperature control

183-17660/1

Testing control line recirculating air and
connecting lines 1 and 12

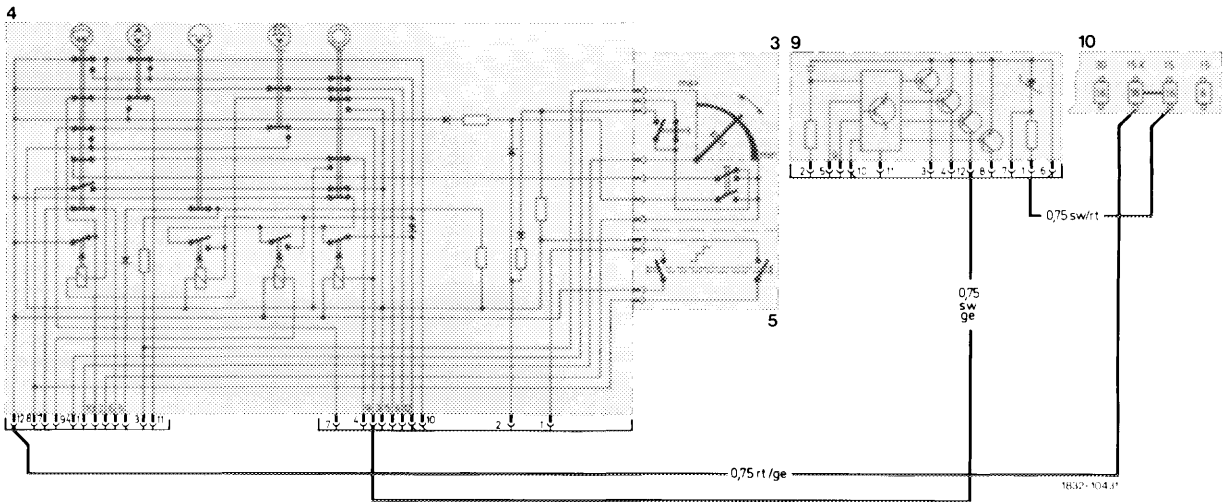**Disconnect battery, switch-on ignition.**
Push function selection button "c".

Position of adapter switch	Nominal value ± 20 Ω
8	45 Ω

Nominal value correct	Nominal value wrong

1. Check electric lines for correct connection.

2. Pushbutton switch unit defective.

3. Switchover valve defective.

Wiring diagram for test step 8 with adapter

4 Pushbutton switch unit
  a Defrosting
  b Top and bottom
  c Normal adjustment (air conditioning on)
  d EC (air conditioning off)
  e Off

9 Electronic switching unit for temperature control
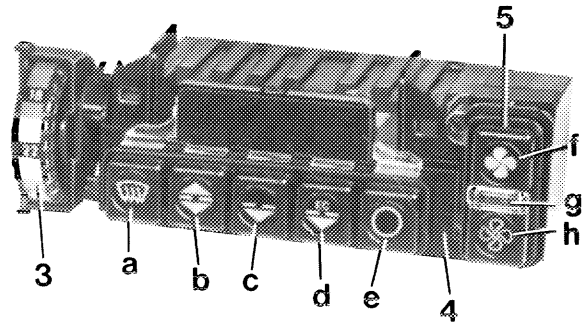10 Fuse box

Testing switchover valve (13) for center nozzle flap and connecting lines 1 and 4

Disconnect battery, switch-on ignition.
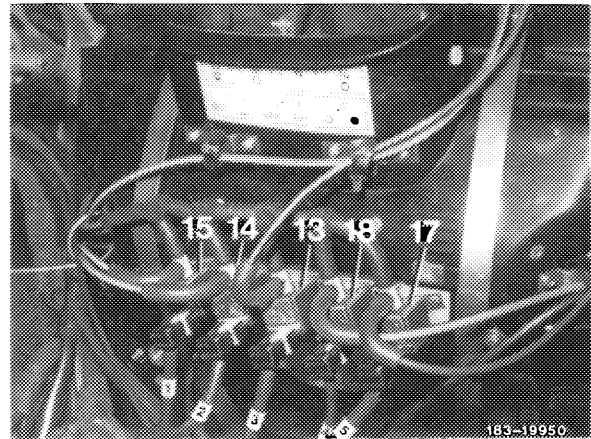Push function selection button "c".

Position of adapter switch	Nominal value ± 20 Ω
9	45 Ω

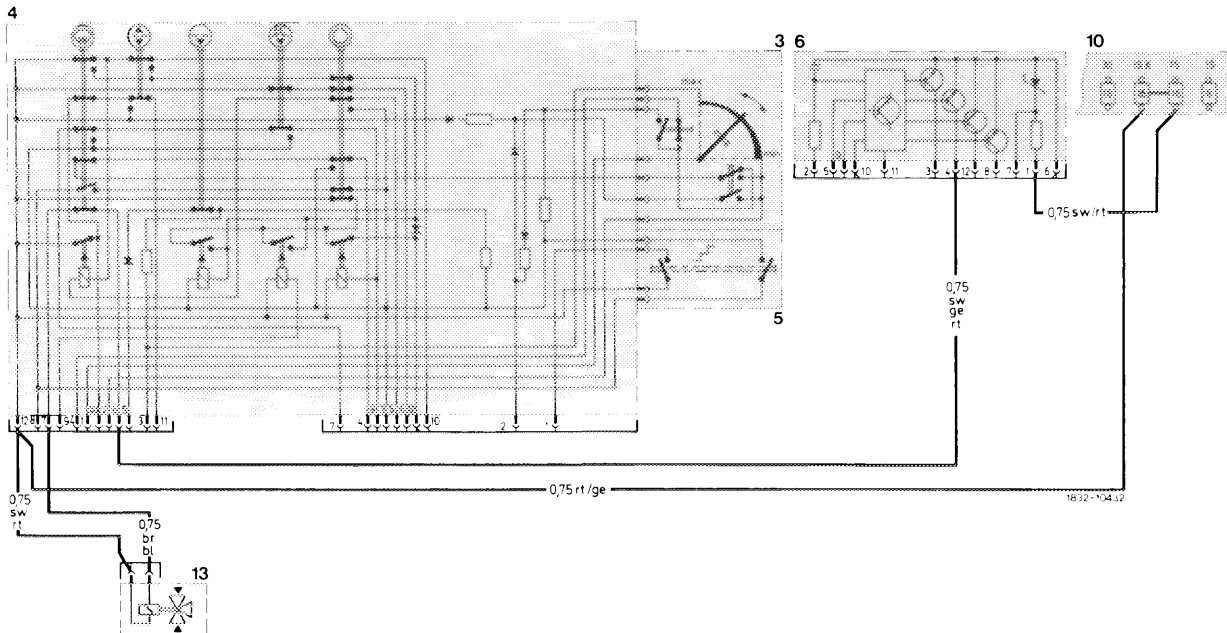| Nominal value correct	Nominal value wrong

183-17660/1

1. Check electric lines for correct connection.

2. Check switchover valve for center nozzle flap and renew, if required.

3. Renew pushbutton switch unit.

183-19950

Wiring diagram for test step 9 with adapter

4	Pushbutton switch unit	9	Electronic switching unit for temperature control
a	Defrosting	10	Fuse box
b	Top and bottom	13	Switchover valve for center nozzle flap
d	EC (air conditioning off)		
e	Off		

Testing function selection "c", connecting lines
6 and 11, as well as electronic switching unit
for blower control (19)
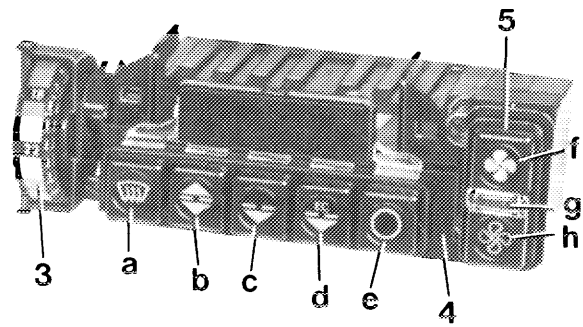
Connect battery, switch-on ignition.

Position of adapter switch	Function selection	Nominal value ±0.3 V
10	"c" pushed and "h" pushed	0.6 V

Nominal value correct	Nominal value wrong

183-17660/1

1. Check electric lines for correct connec-
   tion.

2. Electronic switching unit for blower
   control defective.

3. Renew pushbutton switch unit.
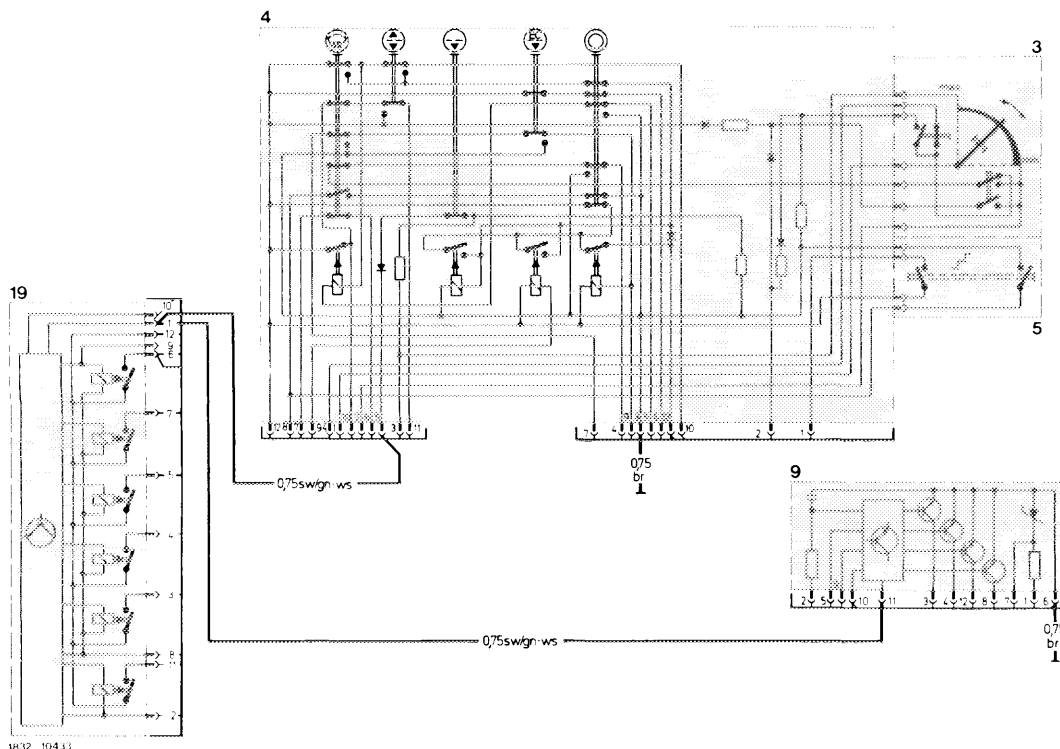
Wiring diagram for test step 10 with adapter

3 Temperature dial
4 Pushbutton switch unit
   a Defrosting
   b Top and bottom
   c Normal adjustment (air conditioning on)
   d EC (air conditioning off)
   e Off
9 Electronic switching unit for temperature control
19 Electronic switching unit for blower control

183-10058

Testing mono valve (11), function selection "c" and connecting lines 1 and 8

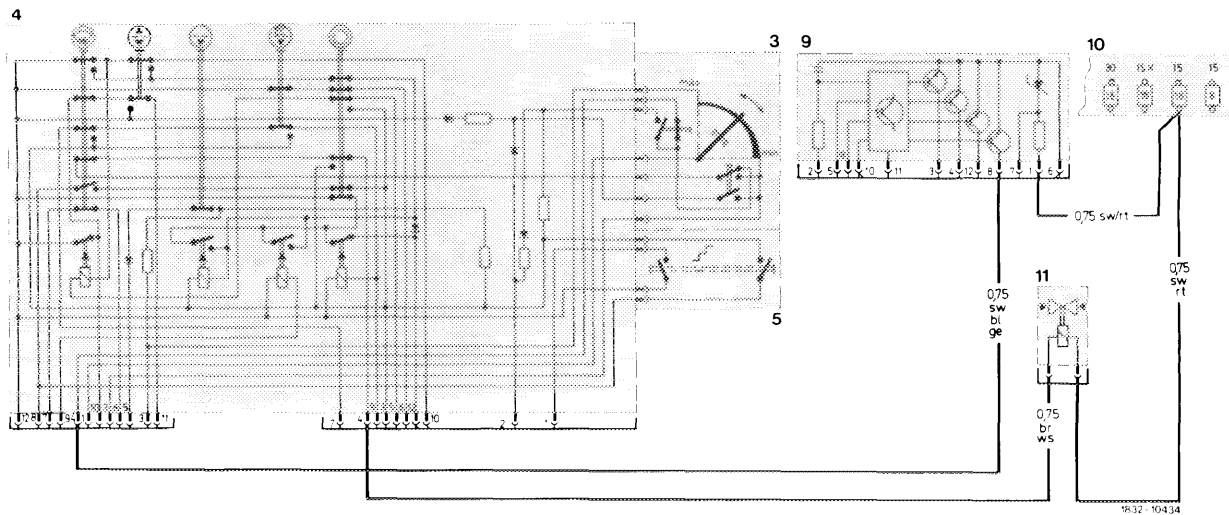**Connect battery, switch-on ignition.**
Push function selection button "c".

Position of adapter switch	Position of temperature dial	Nominal value ±4 Ω
11	"MIN" (engaged)	∞
	22 °C	15 Ω
	"MAX" (engaged)	∞

Nominal value correct	Nominal value wrong

1. Check electric lines for correct connection.

2. Check mono valve, renew if required.

3. Renew pushbutton switch unit.

183-17660/1

183-10434
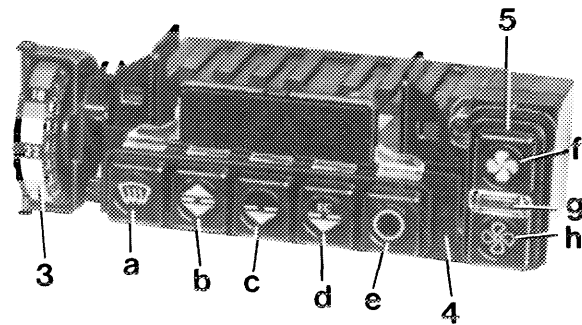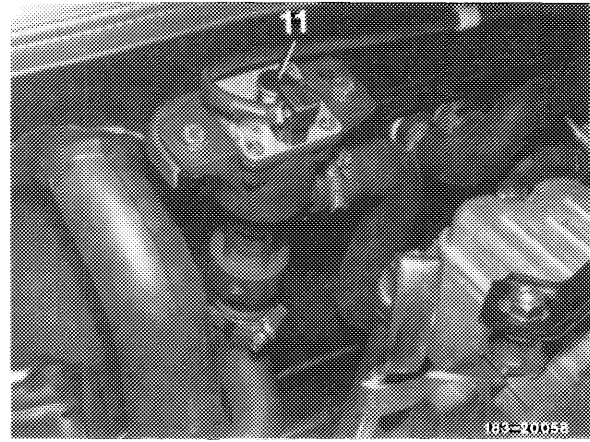
Wiring diagram for test step 11 with adapter

3 Temperature dial
4 Pushbutton switch unit
  a Defrosting
  b Top and bottom
  c Normal position
    (air conditioning on)
  d EC (air conditioning off)
  e Off

5 Blower switch
9 Electronic switching unit for temperature control
10 Fuse box
11 Mono valve

12 Testing blower motor (12)

Plug-in coupling of electronic switching unit for temperature control.
Then pull 2-pole connecting coupling (82) from blower motor and connect 2-pole coupling from adapter, switch on ignition, pull coupling from 33 °C switch (2) and bridge with ground. Run engine at idle.

Position of pushbuttons in blower switch	Blower speed	Nominal value ± 1 V (+ 1A) (−2A)
Pushbutton "h" pushed	Fixed stage slow 1st stage	3.5 V (4A)
Pushbutton "g" pushed[1])	2nd stage 3rd stage 4th stage 5th stage	4.5 V (5.5A) 5.5 V (7.5A) 6.5 V (9A) 8.5 V (13A)
Pushbutton "f" pushed	Fixed stage fast 6th stage	>11 V (18A)

[1] In warm surroundings (interior) set temperature dial up to stop in front of "MIN" or in cool surroundings, set temperature dial before "MAX".
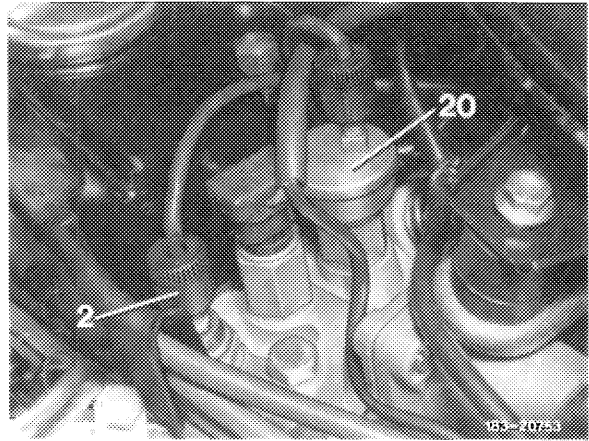
Nominal value correct	Nominal value wrong

1. Check all electric lines for correct connection.

2. Connect new electronic switching unit for tryout.

3. Connect new blower switch for tryout.

4. Renew blower motor.

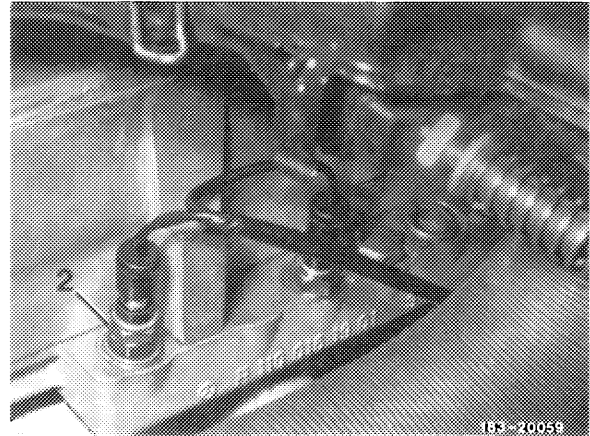5. Renew pre-resistance group.
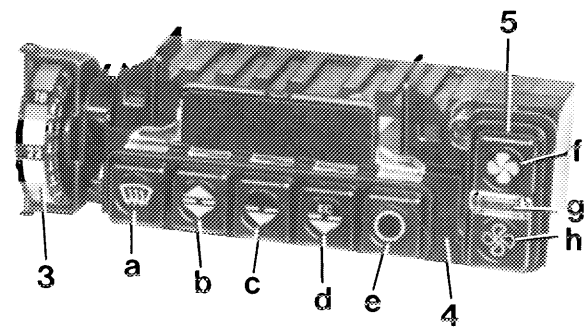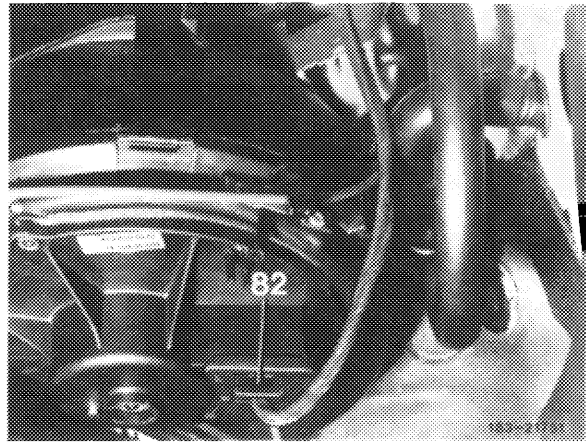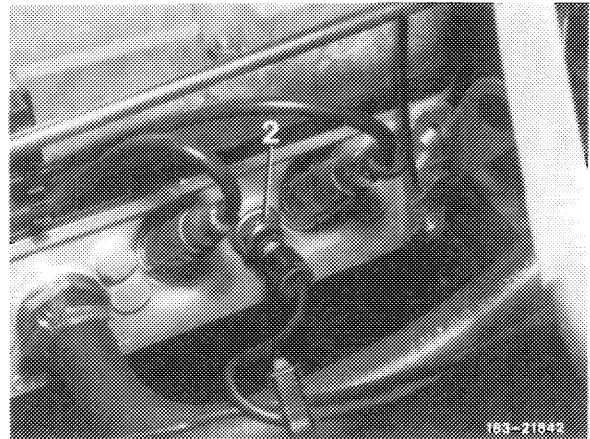

183-17660/1

2 Temperature switch
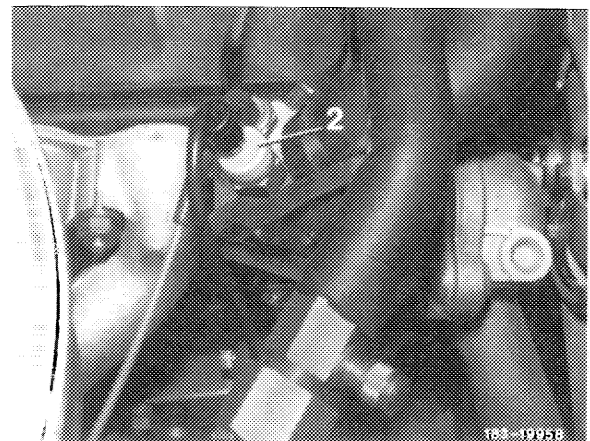(cold engine lock) engine 102

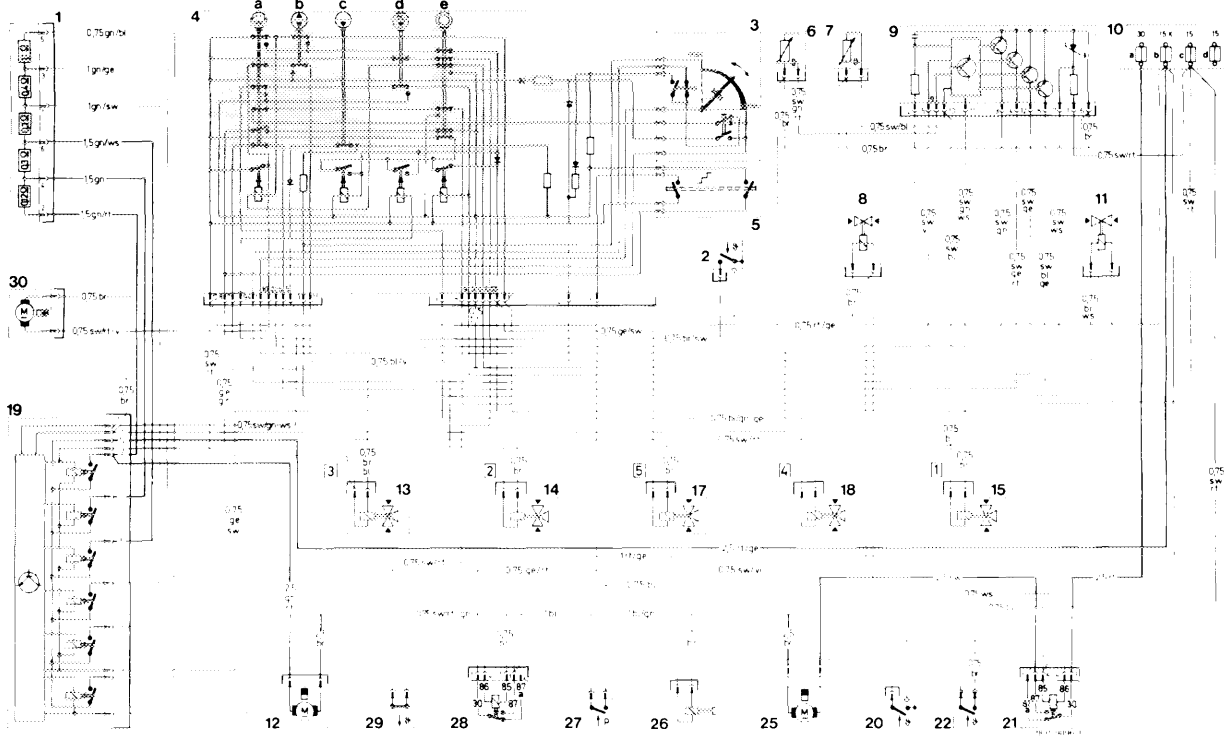2 Temperature switch
(cold engine lock) engine 110

2 Temperature switch
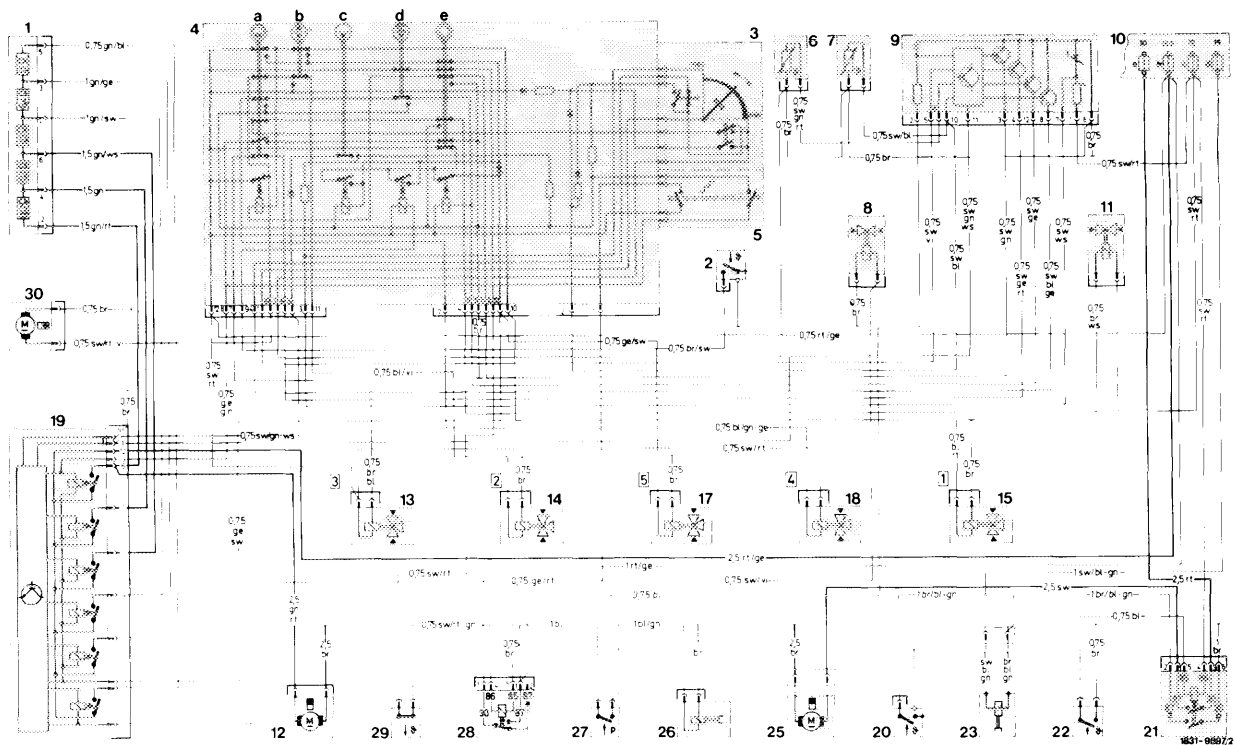(cold engine lock) engine 123

2 Temperature switch
(cold engine lock) diesel engines

Electric wiring diagram automatic climate control
Model 123.0, 123.1

1 Pre-resistance group
2 Temperature switch (cold engine lock)
3 Temperature dial
4 Pushbutton switch unit
  a Defrosting
  b Top and bottom (also legroom)
  c Normal adjustment (air conditioning on)
  d EC (air conditioning off)
  e Off
5 Blower switch
6 Temperature sensor for heat exchanger
7 In-car temperature sensor
8 Changeover valve for rpm stabilization
  (except 123.1)
9 Electronic switching unit for temperature control
10 Fuse box
  a Fuse C: 16 amps.
  b Fuse 8: 16 amps.
  c Fuse 14: 8 amps.

11 Mono valve
12 Blower motor
13 Switchover valve for center nozzle flap
14 Switchover valve for legroom flaps
15 Switchover valve for defroster nozzle flaps
17 Switchover valve for main air flap
18 Switchover valve for recirculating air flap
19 Electronic switching unit for blower control
20 Temperature switch 100 °C for auxiliary fan
21 Relay auxiliary fan (code number 6)
22 Temperature switch 52 °C for auxiliary fan
25 Auxiliary fan
26 Electromagnetic coupling — refrigerant compressor
27 Low-pressure switch refrigerant compressor
28 Relay refrigerant compressor (code number 12)
29 ETR switch
30 Recirculating pump

Electric wiring diagram automatic climate control
Model 123.2

1 Pre-resistance group
2 Temperature switch (cold engine lock)
3 Temperature dial
4 Pushbutton switch unit
   a Defrosting
   b Top and bottom (also legroom)
   c Normal adjustment (air conditioning on)
   d EC (air conditioning off)
   e Off
5 Blower switch
6 Temperature sensor for heat exchanger
7 In-car temperature sensor
8 Switchover valve for rpm stabilization
9 Electronic switching unit for temperature control
10 Fuse box
   a Fuse C: 16 amps.
   b Fuse 8: 16 amps.
   c Fuse 14: 8 amps.
   d Fuse 10: 16 amps.

11 Mono valve
12 Blower motor
13 Switchover valve for center nozzle flap
14 Switchover valve for legroom flaps
15 Switchover valve for defroster nozzle flaps
17 Switchover valve for main air flap
18 Switchover valve for fresh air — recirculating air flap
19 Electronic switching unit for blower control
20 Temperature switch 100 °C for auxiliary fan
21 Relay auxiliary fan and magnetic coupling
   (code number 6a)
22 Temperature switch 52 °C for auxiliary fan
23 Magnetic coupling for fan
25 Auxiliary fan
26 Electromagnetic coupling — refrigerant compressor
27 Low-pressure switch refrigerant compressor
28 Relay refrigerant compressor (code number 12)
29 ETR switch
30 Recirculating pump

Checking switchover valves for main air-, recirculating air-, center nozzle-, defroster nozzle-, and legroom flaps:

Plug 2-pole coupling of harness to in-car temperature sensor.
Connect battery, switch-on ignition, run engine at idle.

| Function selection	Mode	Main air flap (fresh air indication in %)	Recirculating air flap	Center nozzle flap	Defroster nozzle flaps	Legroom flaps
a	Heating mode	100	100	closed	open	closed
b	Heating mode	100	100	closed	open	open
	Cooling mode	100	20[1])	open	open	open
c	Heating mode	100	100	closed	Leak air	open
	Cooling mode	100	20[1])	open	closed	closed
d	Heating mode	100	100	closed	Leak air	open
	Cooling mode	100	100	open	closed	closed
e	Off	closed	20	closed	open	closed

[1]) If the in-car temperature is 3 °C higher than the temperature set on temperature dial, the system operates with recirculated air.

Flap position correct	Flap position wrong

1. Check electric lines for correct connection.

2. Check vacuum lines for correct assembly (refer to 83—604).

3. Check respective switchover valve and replace, if required (refer to 83—604).

4. Check respective vacuum element and replace, if required (refer to 83—604).

**Testing cold engine lock
(engine temperature below 33 °C)**

Switch-on ignition, push function button "c", pull electric connecting plug from cold engine lock and bridge (ground).

Heater blower should start.

Heater blower starting	Heater blower not starting
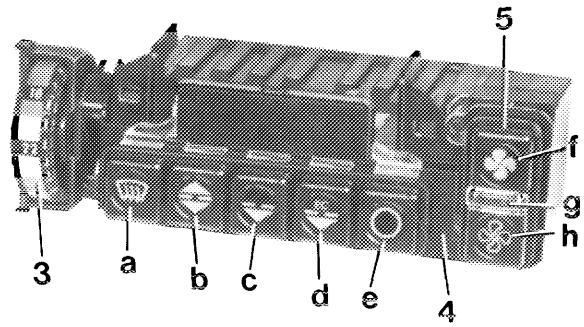
183-17660/1

1. Check electric lines for correct connection.

2. Check blower control (test step 12).

3. Change pushbutton switch unit.

2 Temperature switch
(cold engine lock) engine 102
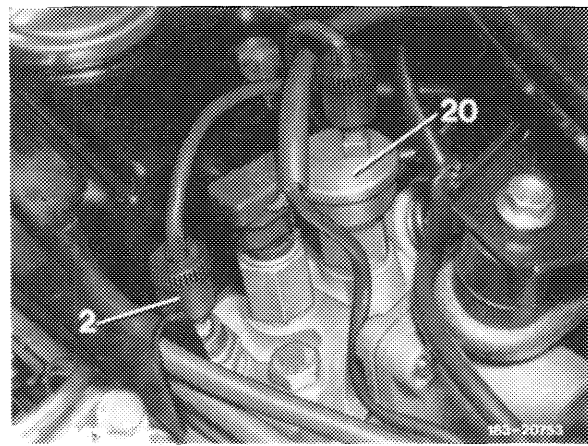
Attach plug to cold engine lock and run engine warm at approx. 2000/min. Push function selection button "c".
(Engine temperature > 33 °C)

Heater blower should start.

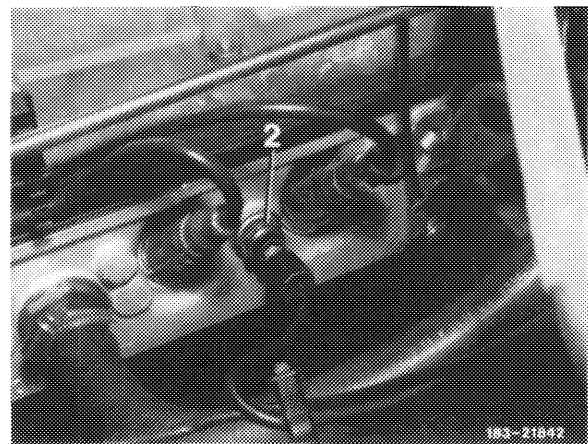| Heater blower starting	Heater blower not starting

2 Temperature switch
(cold engine lock) engine 110
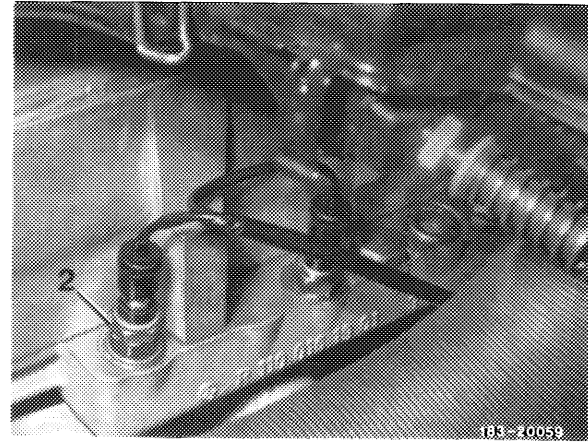
Renew cold engine lock.

2 Temperature switch
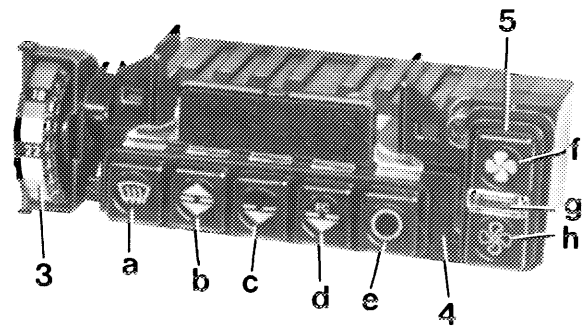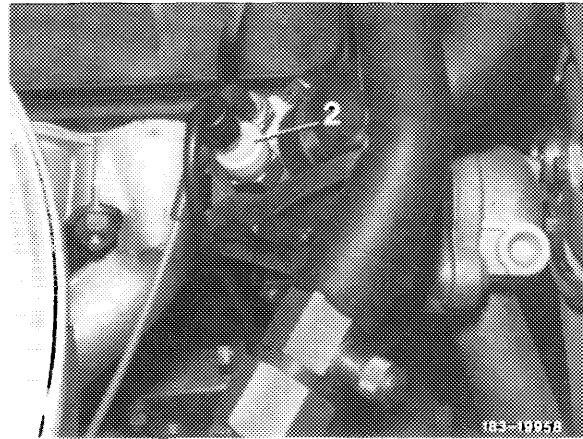(cold engine lock) engine 123

2 Temperature switch
   (cold engine lock) diesel engine

Checking mono valve for leaks

Set temperature dial to "MIN" engaged, push
function selection button "b". Run engine to
operating temperature (function test bench).
Heat exchanger should remain cold, that is, no
heated air should come out.

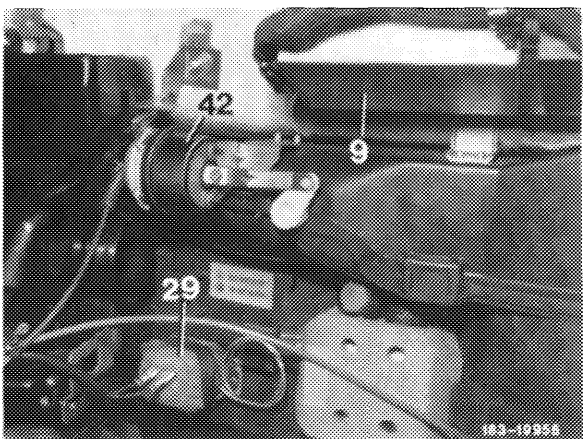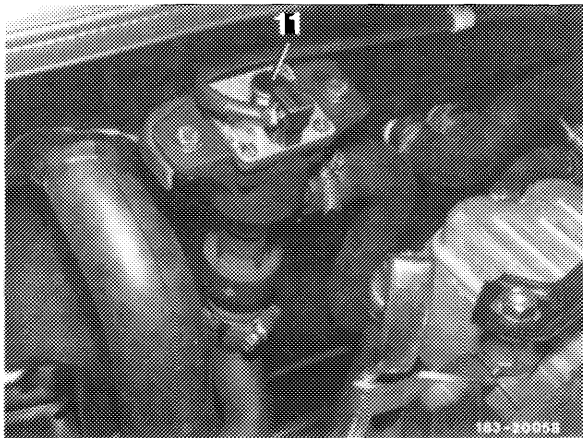| Heated air not | Heated air coming |
| coming out | out |

183-17660/1

1. Check whether plus and minus are
   connected to coupling for mono
   valve.

   Caution: short circuit risk!

2. Connect electronic switching unit
   for temperature control (9) for
   tryout.

3. Renew mono valve (11).

End of test