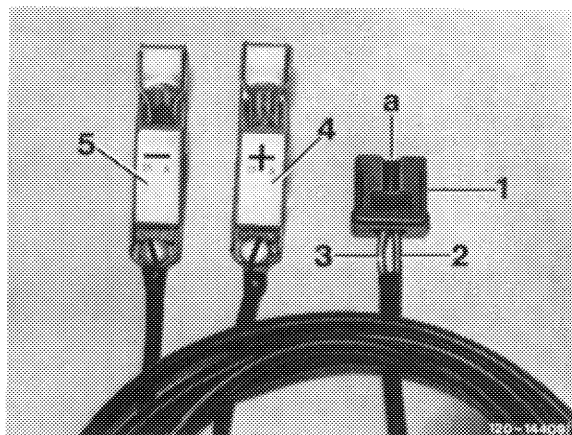


**Self-made tools**

- 1 Coupling part no. 002 545 49 28
- 2 Line black 1.5 mm dia. 1 m long
- 3 Line brown 1.5 mm dia. 1 m long
- 4 Cable terminal +
- 5 Cable terminal -
- a Locating groove

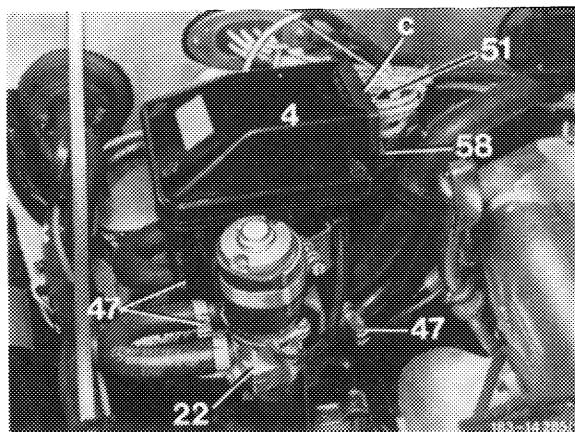


**A. Regulating valve**

**Removal**

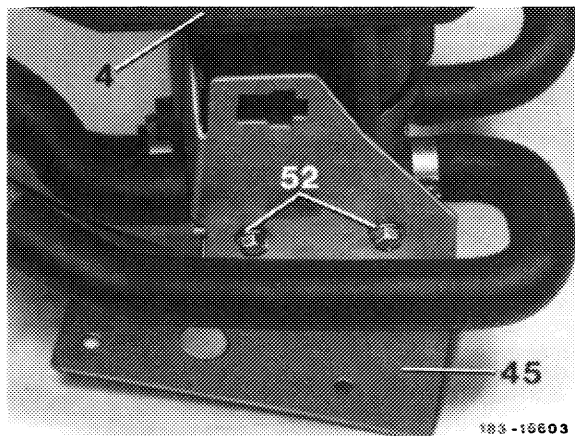
- 1 Drain coolant.
- 2 Unscrew screw (51) from vacuum plug (c) and pull off vacuum plug.

- |                       |                  |
|-----------------------|------------------|
| c Vacuum plug         | 47 Hose clamp    |
| 4 Regulating valve    | 51 Screw         |
| 22 Heating water pump | 58 Electric plug |

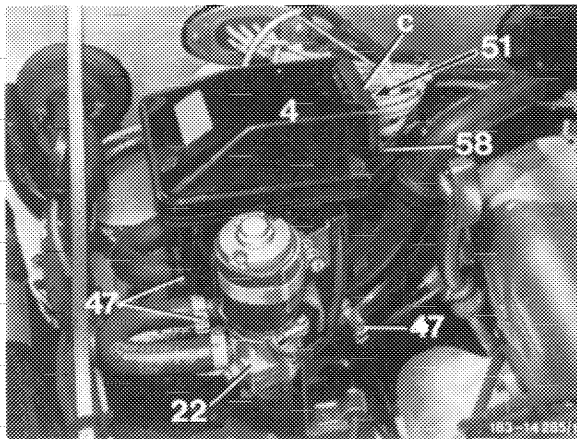


- 3 Pull off electric plug (58), paying attention to safety hooks. Hooks are located at bottom of plug.
- 4 Unscrew screws (52).

- |                    |                                     |
|--------------------|-------------------------------------|
| 4 Regulating valve | 52 Screws with washer and snap ring |
| 45 Holder          |                                     |

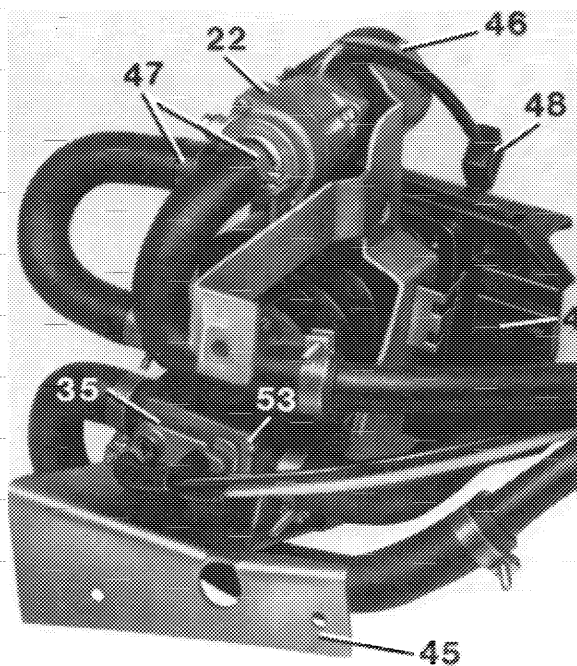


5 Loosen hose clamp (47) and pull off water hoses.



- |    |                    |    |               |
|----|--------------------|----|---------------|
| 4  | Regulating valve   | 51 | Screw         |
| 22 | Heating water pump | 58 | Electric plug |
| 47 | Hose clamp         | c  | Vacuum plug   |

6 Pull vacuum lines from temperature switch (35).



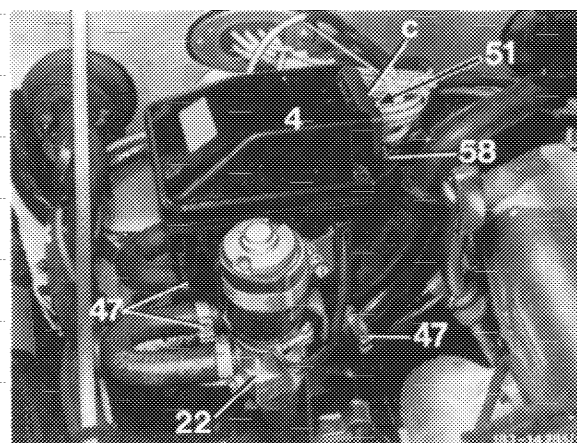
- |    |  |    |               |
|----|--|----|---------------|
| 4  | Regulating valve                         | 46 | Clamp         |
| 22 | Heating water pump                       | 47 | Hose clamp    |
| 35 | Temperature switch<br>(cold engine lock) | 48 | Electric plug |
| 45 | Holder                                   | 53 | Screw         |

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### Installation

7 Plug vacuum lines to temperature switch. Pay attention to varying thickness of vacuum lines.

8 Mount hose lines to regulating valve and tighten hose clamps (47).



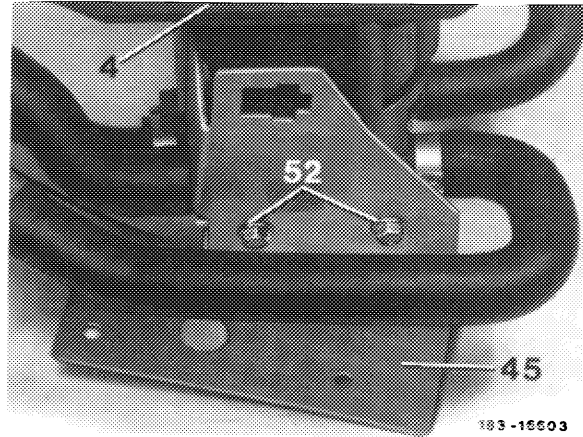
- |    |                    |    |               |
|----|--------------------|----|---------------|
| 4  | Regulating valve   | 51 | Screw         |
| 22 | Heating water pump | 58 | Electric plug |
| 47 | Hose clamp         | c  | Vacuum plug   |

9 Screw regulating valve to holder (45) by means of screw (52).

10 Mount electric plug (58) and vacuum plug (c).

4 Regulating valve  
45 Holder

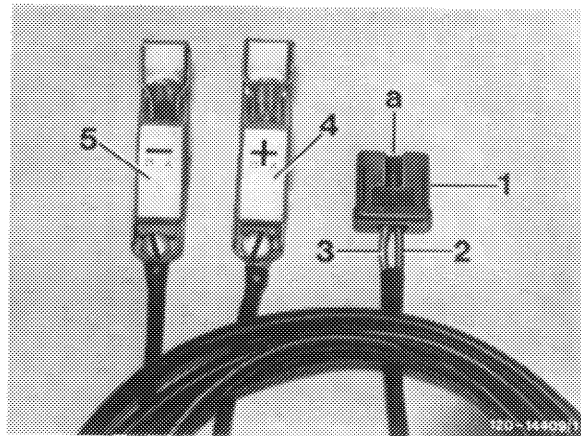
52 Screws with washer  
and snap ring



11 Add coolant and check hose connections for leaks.

12 Bleed cooling system, while bridging temperature switch (21) for heating water pump or connect heating water pump directly to vehicle battery by means of self-made harness. Push "DEF" button and run engine at approx. 2000/min until operating temperature of engine is attained.

13 Check operation of automatic climate control.



## B. Temperature switch (cold engine lock)

### Data

Switch-on point

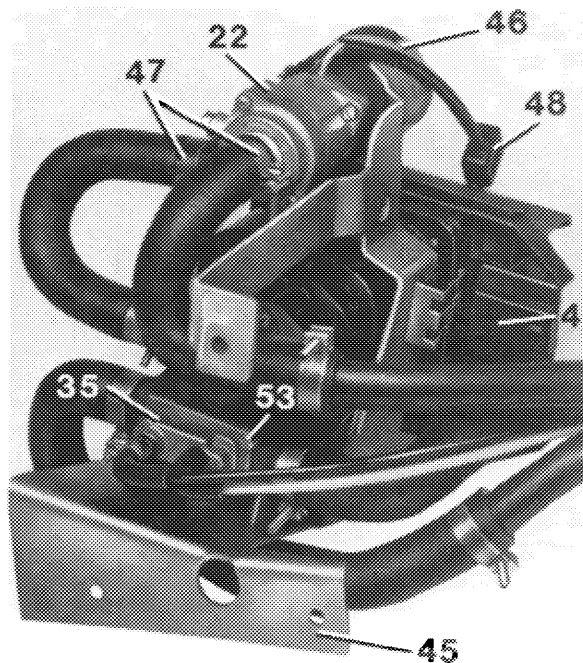
40 °C (104 °F) coolant temperature

### Removal

- 1 Remove regulating valve (refer to section A).
- 2 Unscrew screws (53).
- 3 Remove temperature switch (35).

4 Regulating valve  
22 Heating water pump  
35 Temperature switch  
(cold engine lock)  
45 Holder

46 Clamp  
47 Hose clamp  
48 Electric plug  
53 Screw



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## Installation

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- 4 Check gasket and replace, if required.
- 5 Screw temperature switch (35) to regulating valve with screws (53), paying attention to locating cam.
- 6 Install regulating valve.

## Heating water circuit

