

OPERATING PRINCIPLE

The vehicle with a **G9T** engine is fitted with an additional heating system as an option in some countries (Germany, Nordic countries...). This comprises an engine coolant heater, mainly for starting when cold.

The heater is switched on if the following three conditions are met:

- starting the engine,
- air intake temperature less than **5 °C**,
- coolant temperature less than **75 °C**.

The heater is usually switched off when the engine is stopped or the coolant temperature reaches **85 °C**.

The temperature is measured inside the heater.

The driver does not control operation.

The system is fitted with several safety features (see **page 61-3**).

The heater is connected as the outlet of the thermoplunger unit on the coolant circuit and operates independently of this. It is fitted outside the left-hand side member in the front bumper.

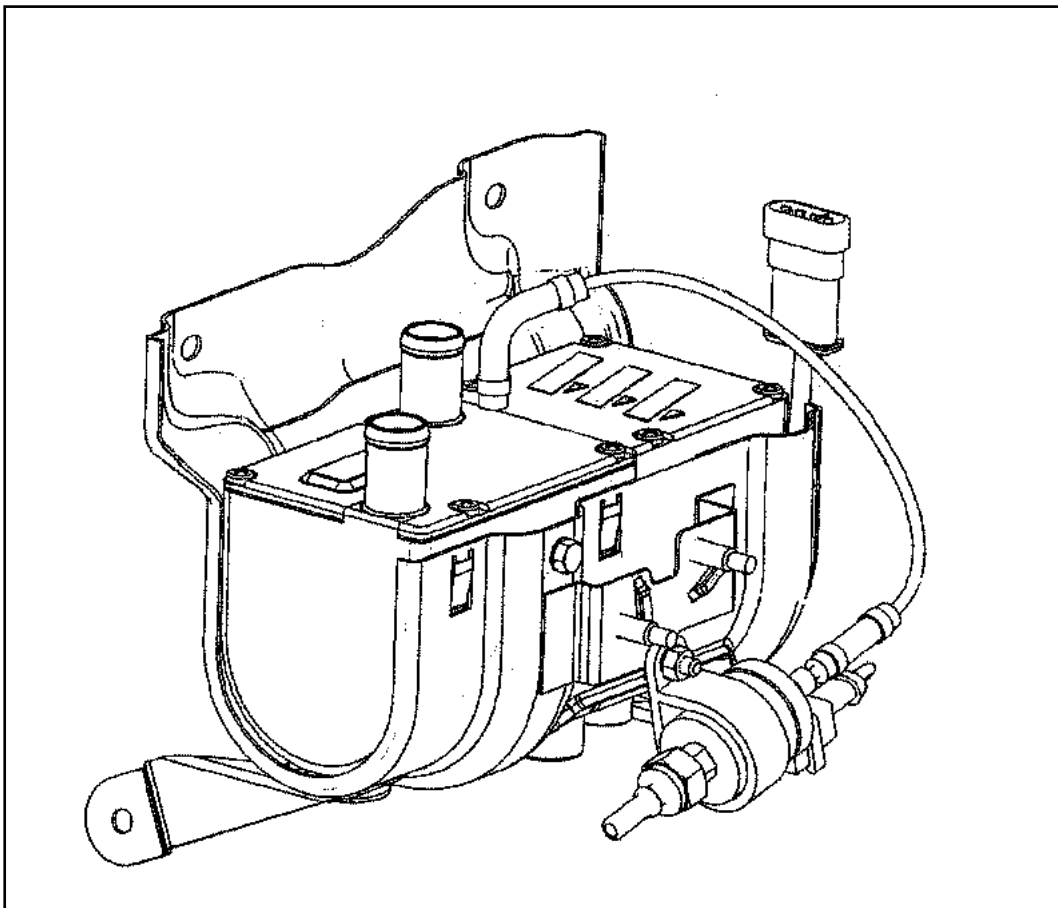
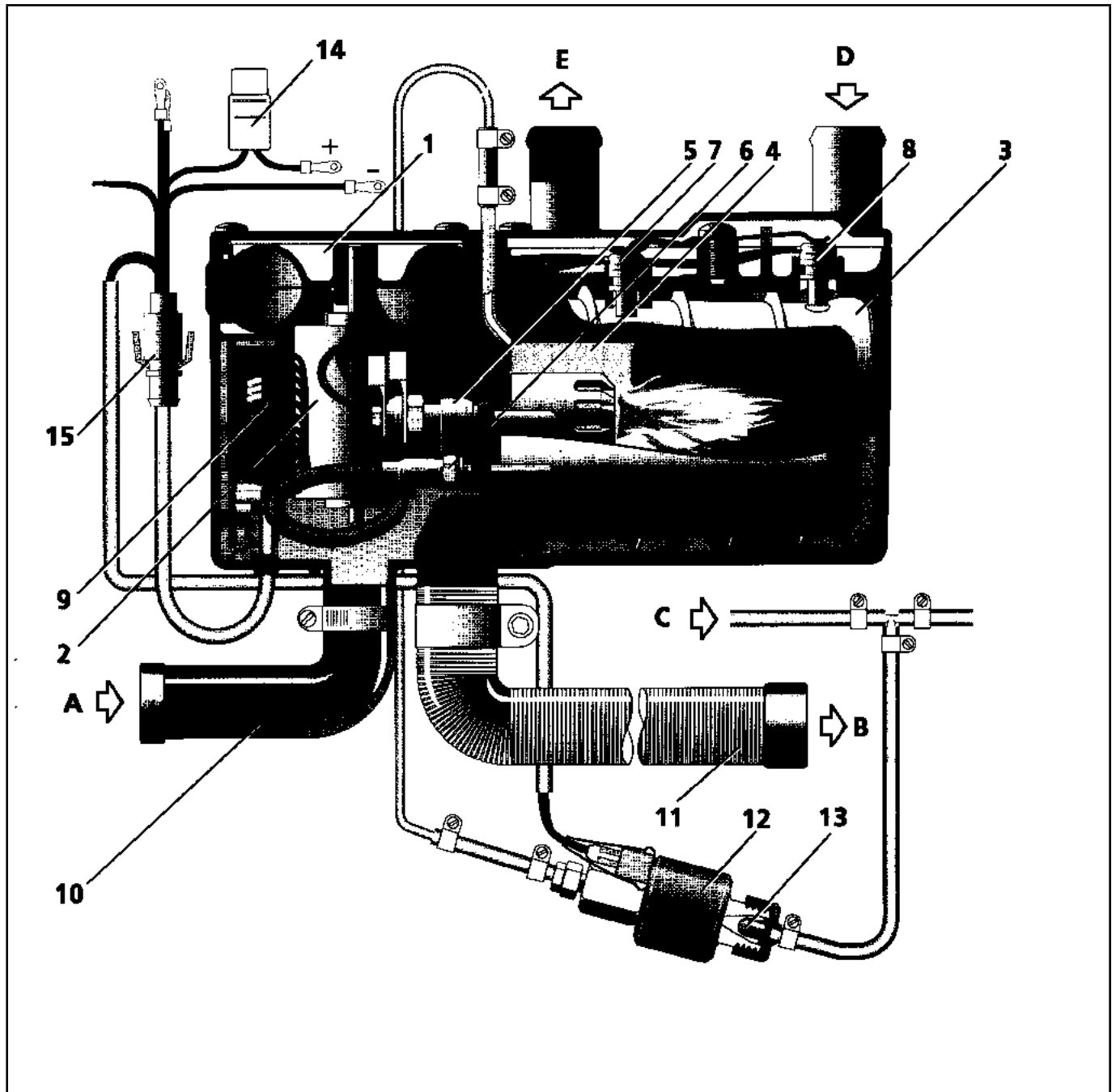


DIAGRAM OF THE D3WZ HEATER



- | | |
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| <ul style="list-style-type: none"> 1 Air blower turbine 2 Electric motor 3 Heat exchanger 4 Combustion chamber 5 Spark plug 6 Flame detector 7 Temperature sensor 8 Overheating switch 9 Control unit 10 Combustion air intake tube 11 Burnt gas exhaust pipe 12 Dosing pump | <ul style="list-style-type: none"> 13 Fuel filter 14 Main fuse 15 Interface <p>A Combustion air inlet
 B Exhaust gas outlet
 C Vehicle fuel circuit
 D Coolant inlet (thermoplunger outlet)
 E Coolant outlet (towards the heater matrix)</p> |
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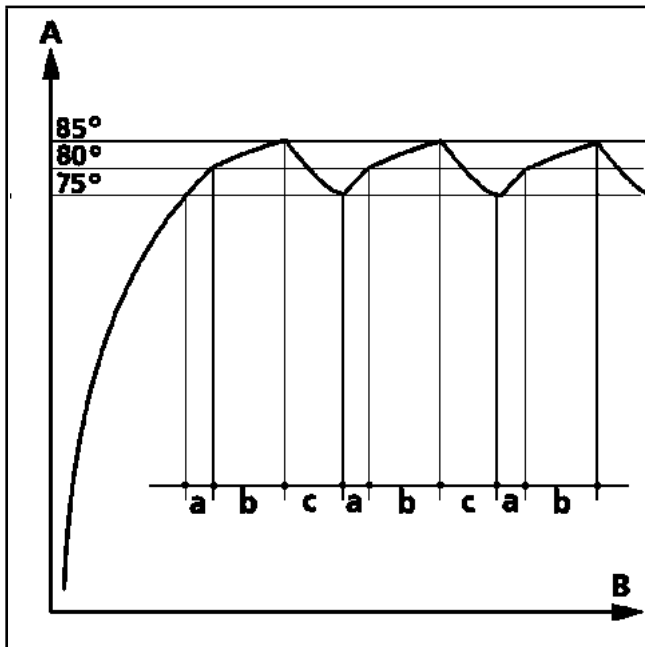
TECHNICAL SPECIFICATIONS

The heater is fitted with an igniter appropriate for the vehicle fuel.

It operates in two power levels:

- 1°) Low speed:
 - Power: **1600 Watts**,
 - Fuel consumption: **0.2 l/hour**.
- 2°) High speed:
 - Power: **3300 Watts**.
 - Fuel consumption: **0.4 l/hour**.

When the engine is started, the heater is operated at high speed; circulation of the coolant inside the exchanger is ensured by the vehicle coolant circuit.



A Temperature (°C)
B Minutes

- Range **a**:
High speed.
- Range **b**:
Low speed.
- Range **c**:
Heater stop.

Coolant temperature measured inside the heater.

SAFETY SYSTEMS

The system is fitted with several safety features; it cuts out:

- if the difference in coolant temperature read by the two internal heater sensors reaches **15 °C**,
- if the coolant temperature reaches **120 °C** (different safety features than reading 85°),
- if the flame detector does not detect combustion, (notably the heater fuel pump),
- if the battery voltage is greater than **16 volts** or less than **10 volts**.

Other safety devices:

- when the heater does not light 90 seconds after the supply of fuel is started, the starting procedure is repeated. If, during the following 90 seconds the system still does not start, the emergency stop is engaged.
- if the flame extinguishes during operation the starting procedure is repeated. If the heater does not start up in the following 90 seconds, the emergency stop is engaged.
- in the event of overheating (lack of coolant, incorrectly drained cooling circuit...), the overheating switch reacts, the fuel supply is stopped and the emergency stop is engaged. The heater can be restarted after the source of overheating has been eliminated and the heater has cooled sufficiently.

SWITCHING OFF

To temporarily disconnect the heater (operation with engine running in an enclosed space, noises when cold,...), disconnect the connector (15) (**page 61-2**). If possible, check that the heater engages after it is reconnected.

The main **F49** (70 A) fuse on the engine intercommunication unit supplies the additional heating system.

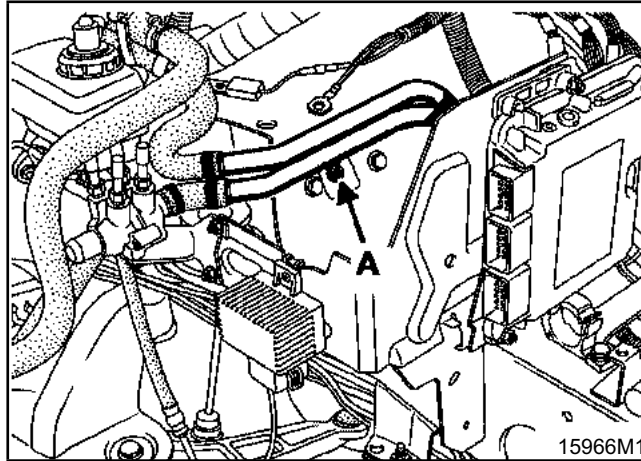
HEATING

Additional heating

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RIGID HEATER COOLANT PIPES

These are fixed to the body by bolt (A).
When refitting, tighten this bolt last after refitting and tightening all the clips.

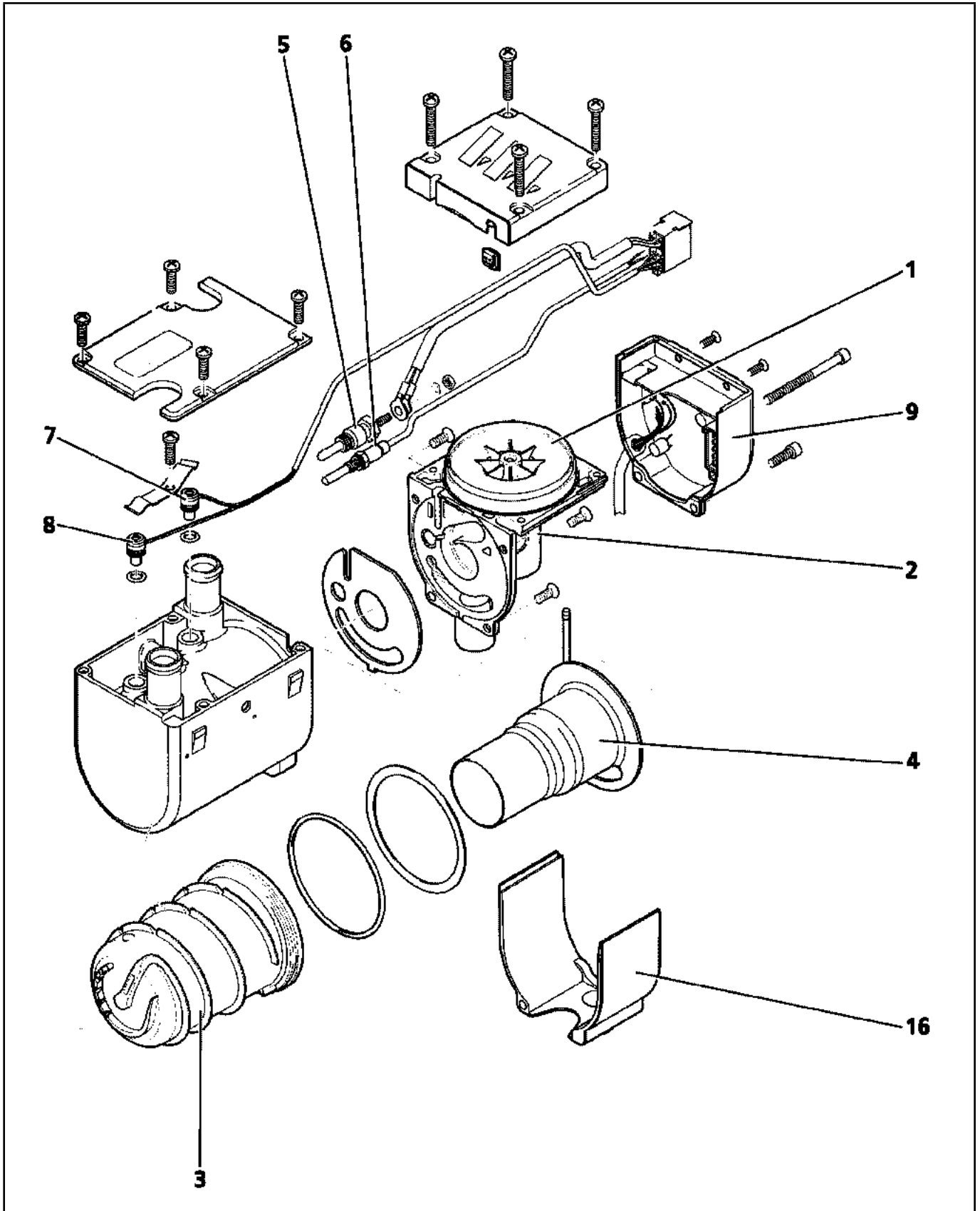


HEATING

Additional heating

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EXPLODED VIEW OF THE HEATER



Marking as on page 61-2.

16 Cap

MAINTENANCE

The principal maintenance operations on this assembly are:

- replacing the ignition spark plug (5),
- cleaning the filter at the pump inlet (13) (see **page 61-2**).

REMOVING - REFITTING COMPONENTS

FUEL PUMP INLET FILTER (13)

Remove the front bumper.

Rotate the pump (12) (see **page 61-2**) if it turns and loosen the union covering the filter (13). Clean or replace the filter if there is a combustion problem.

IGNITION SPARK PLUG

Disconnect and remove the heater without draining the cooling circuit (use pliers **Mot. 453-01**).

Remove:

- the turbine cover (1),
- the control unit (9) and the cap (16),
- the spark plug (5) after disconnecting it.

FLAME DETECTOR

Disconnect and remove the heater without draining the cooling circuit (use pliers **Mot. 453-01**).

Remove:

- the turbine cover (1),
- the control unit (9) and the cap (16).

Disconnect the flame connector by pulling the flat terminals from the connector.

Remove the flame detector.
(WARNING: fragile part)

COMBUSTION CHAMBER (4) AND EXCHANGER (3)

Remove:

- the flame detector and spark plug,
- the wiring harness fitted on the overheating detector (8) and the temperature sensor (7),
- the turbine support (1).

Remove the combustion chamber (4) and the exchanger (3) if necessary.

FAULT FINDING

In case of a fault, check:

- if there is fuel in the tank,
- if the fuses are intact
- if the pipes, connections and electrical unions are intact,
- if the combustion air ducts or exhaust gas ducts are blocked (unblock them if necessary).

In the even of combustion with the production of soot, check:

- if the combustion air ducts or exhaust gas ducts are blocked (unblock them if necessary),
- if there is a deposit in the exchanger (3) or the combustion chamber (4); clean these if necessary,
- if the dosing pump flow is correct;

To do this:

- remove the bumper,
- disconnect the electric pump inlet fuel pipe (12), from the side opposite the fuel filter (13),
- connect a pipe to the electric pump so that the flow can be collected in a glass at the same height as the heater,
- start the heater (if necessary, bridge the temperature sensor located in front of the battery screen). After approximately 40 seconds, the fuel arrives and begins to bleed the circuit. Switch off the ignition. Empty the glass and start again, collecting the stabilised flow for approximately 30 seconds. Switch off the heater and measure the quantity of fuel collected.
Normal flow: between **6.8 cm³** and **7.8 cm³** for 90 seconds of operation.