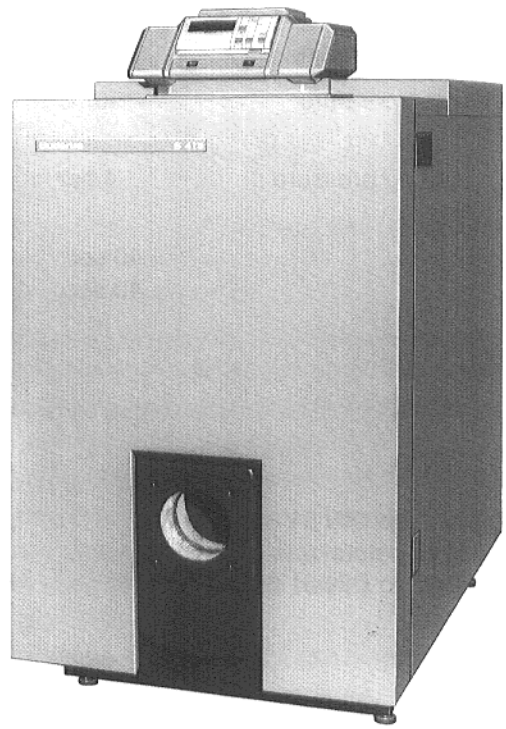
5643 515 - 1/95 GB

Buderus
HEIZTECHNIK

Installation and maintenance instructions

Steel boiler S 415 and S 415 U
Hot water boiler for oil or gas firing



Save these instructions!

1. Regulations and guidelines

The Buderus hot water boilers S 415 and S 415 U meet the requirements of DIN 4702 in their design and operating behaviour.

For installing and operating the installation, the practical rules for the technology as well as the building codes and other legal stipulations must be observed.

A list of applicable DIN standards, regulations and guidelines is contained in the accompanying Buderus Installation Instructions for Installers of Heating Installations.

Installation, connection of fuel and flue, initial start-up, electrical power connection as well as maintenance and repairs must only be carried out by a specialist heating company. Work on parts conveying gas must be carried out by a licensed specialist company.

Buderus steel boilers S 415 and S 415 U are hot water boilers for oil or gas firing.

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* Accessory to be ordered separately.

Safety limits

- Max. permissible flow temperature:	120 °C
- Min. permissible flow temperature: * for Ecomatic no limit	*50 °C
- Permissible total operating pressure :	4 bar
- Max. time constant T for Thermostat: Safety limit stat:	 40 sec. 40 sec.

Leakage test

The leakage test must be carried out in compliance with DIN 18380. The testing pressure depends on the pressure prevailing in the installation and amounts to 1.3 times this pressure, but not less than 1 bar.

The specifications on the boiler's rating plate are binding and must be complied with.

Fuels

S 415 - heating oil EL; to DIN 51 603
- town, liquid or natural gas

S 415 U - heating oil EL; to DIN 51 603
- natural gas

2. Delivery

Transportation unit boiler body

In the combustion chamber there are:
Thermal insulation for rear panel, screw-on feet, second rating plate, installation instructions, operating instructions and technical data.

Transportation unit boiler jacket

Carton with boiler jacket, thermal insulation, burner cable and accessories.

Control panel

Carton with control panel and operating instructions.

3. Dimensions and connections

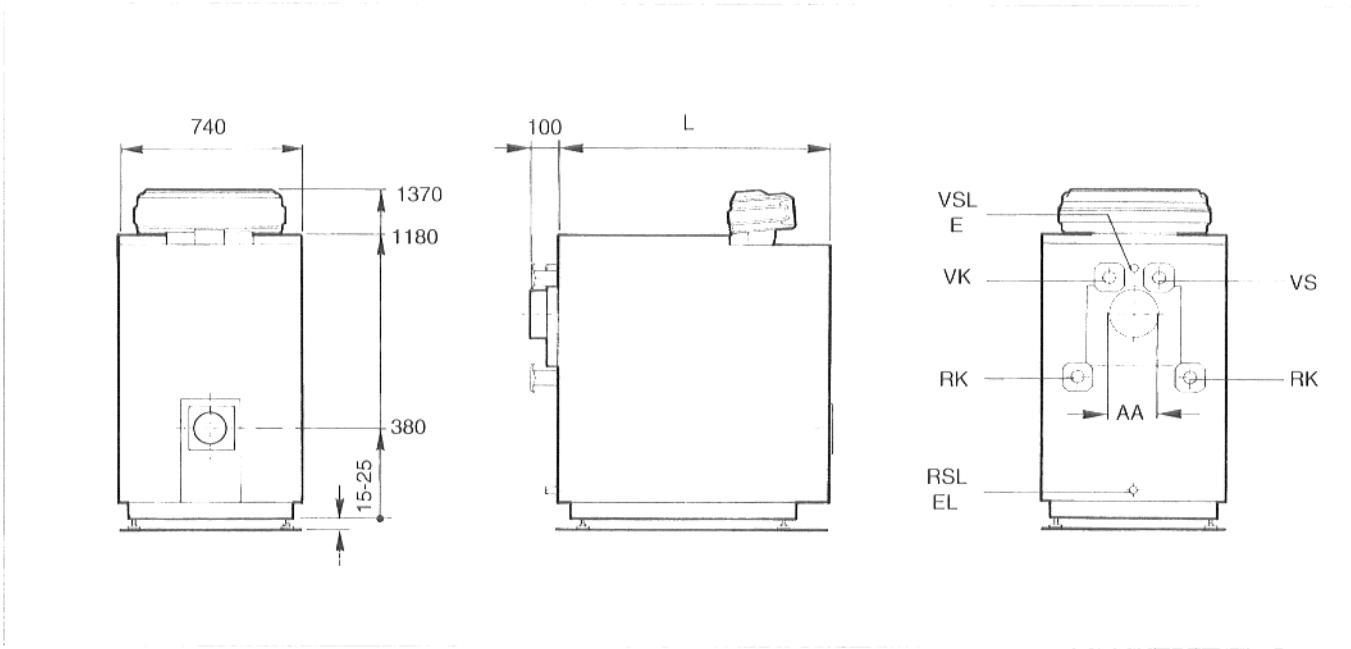

Fig. 1

boiler size	nominal output range kW	boiler dimensions mm L	ØAA	boiler flow/ return VK/RK	safety flow VSL/E	safety return RSL/EL	weight (approx.) kg
95	80- 95	1085	200	2" *)	1 1/4"	1 1/4"	445
120	105-120	1085					452
145	130-145	1285					505
170	155-170	1285					525

*) Connection flange DN 50

RK = boiler return
RSL = safety return
VK = boiler flow
VSL = safety flow
E = deaeration
EL = drainage

Burner depth

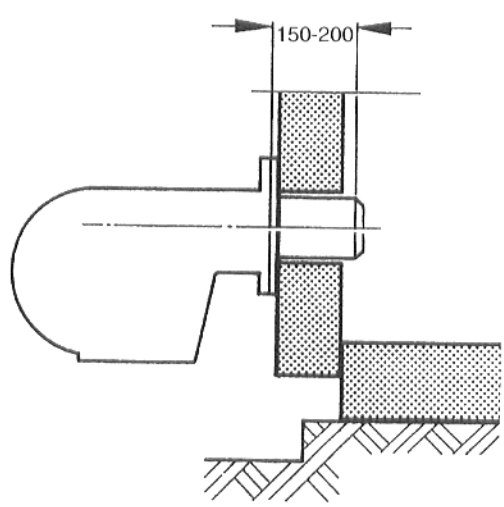

Fig. 2

4. Installation

A room free of frost must be chosen to install the boiler. The heating installation must not freeze.

When installing the boiler, the minimum distance from the walls must be complied with (Fig. 3).

The boiler door can be hinged on the left or the right.

Screw the screw-on feet into the boiler base leaving 10-15 mm. Align the boiler body vertically with a slight tilt to the rear (Fig. 1).

$$A = \frac{L}{2} + 500$$

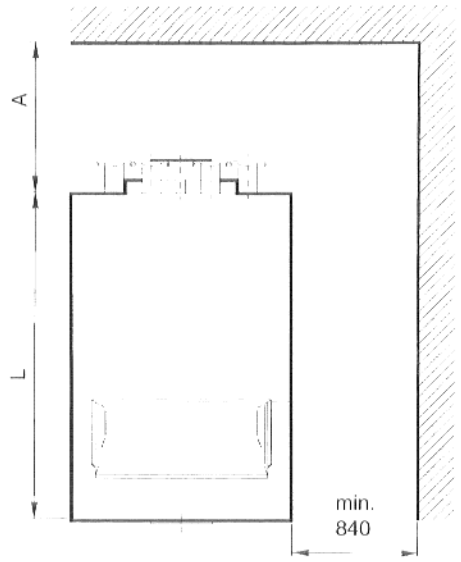

Fig. 3

5. Assembly

Note:

Most of the screws required for assembling the installation are already screwed into the appropriate drill holes and have to be loosened and screwed out before assembling.

The remaining screws and small parts are contained in the accessories bag (combustion chamber).

The thermal insulation for the rear panel must be fitted before installation.

- Lay the thermal insulation for the rear panel on the rear panel of the boiler body and fasten with two fastening pins and fastening plates each top and bottom (Fig. 4).

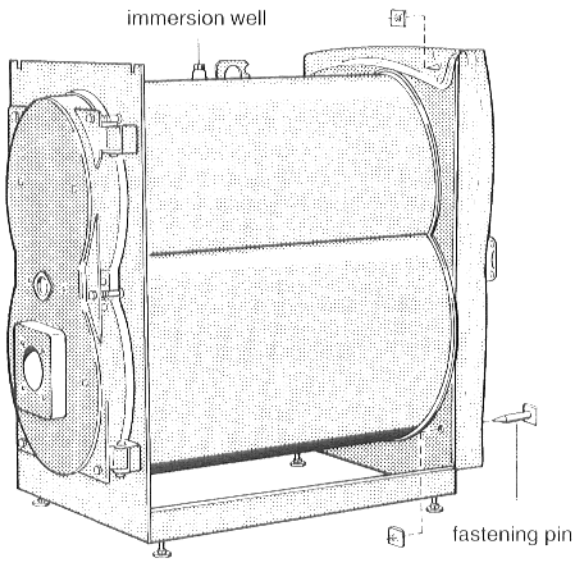

Fig. 4

Installation

- Make water pipe connections.
- Install the boiler ventilation pipes (no reduction of diameter in horizontal pipes).
- Lay the pipes so they rise to the expansion container (for open installations).
- Disconnect safety valve and pressure expansion container (for closed installations) before the pressure test.
- Lay the pipes so that they are not under any strain.
- Remove the protective cap from the immersion well (Fig. 4).
- Make the flue gas connection.

Flue pipe sealing collar*

- Push the tightening bands **B** onto flue pipe **D**.
- Push flue pipe **D** about 40 mm onto the boiler connection piece **A**.
- Fit the flue gas sealing collar **C**.
- Push tightening bands **B** over the sealing collar and tighten (Fig. 5).

* Accessory to be ordered separately.

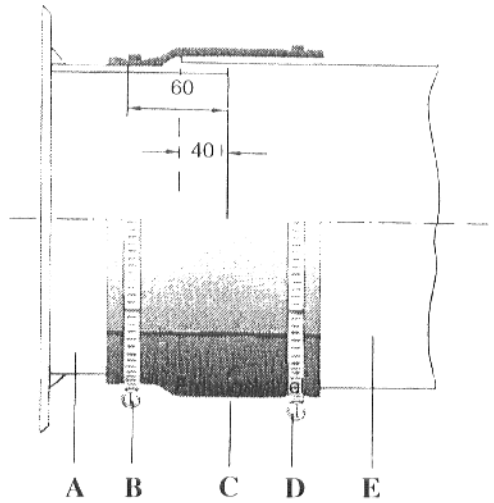

Fig. 5

Thermal insulation, burner cable, boiler jacket

Notes:

Before fitting the jacket, burner cables must be fed through the appropriate opening in the side panel (Fig. 7).

The immersion well must remain accessible (Fig. 4).

- Push the thermal insulation blanket underneath the boiler body and lay it around the boiler body (Fig. 6).
- Fasten the thermal insulation blanket with three tension springs (Fig. 6).
- Place thermal insulation strips over the front boiler panel (Fig. 6).

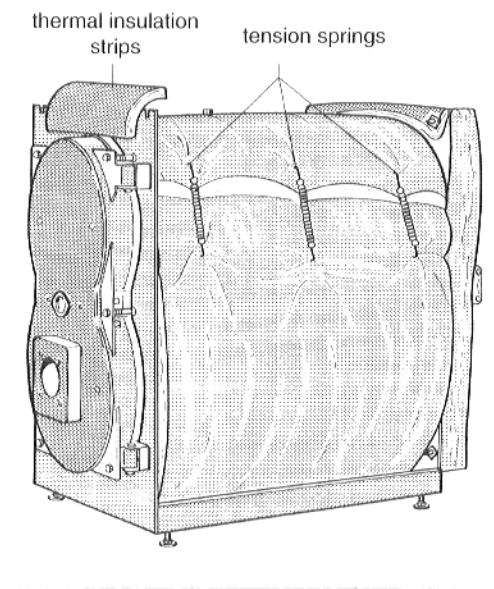

Fig. 6

- Feed the burner cables through the opening in the side panel (Fig. 7).
  If the door is hung on the right: opening in the right-hand side panel.
  If the door is hung on the left: opening in the left-hand side panel.
- Attach the side panels on the right and left using the lower slits in the front and rear panels of the boiler body (Fig. 7).
- Attach the side panel with the top folded edge in the slits in the front and rear panels of the boiler body (Fig. 7).

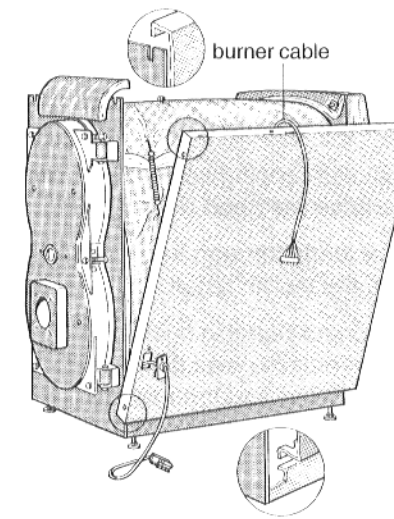

Fig. 7

- Place the front boiler hood left and right on the folded edge of the side panel, pull forward to the two hooks and slot into the slit in the side panel (Fig. 8).
- Screw the front boiler hood tight with two self-tapping screws in the clip brackets on the folded edge of the side panel (Fig. 8).

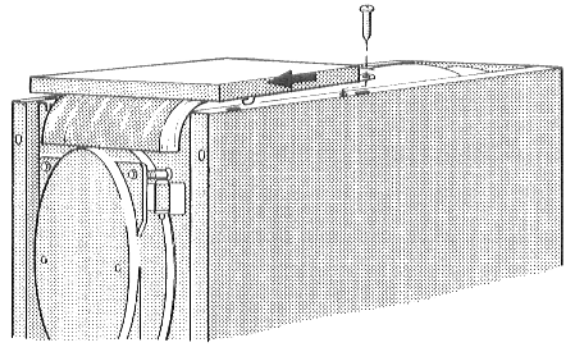

Fig. 8

- Position an adapter plate on the front boiler hood and screw on with four self-tapping screws (Fig. 9).

  Note:
  The rear edge of the adapter plate must be roughly flush with the rear edge of the front boiler hood.

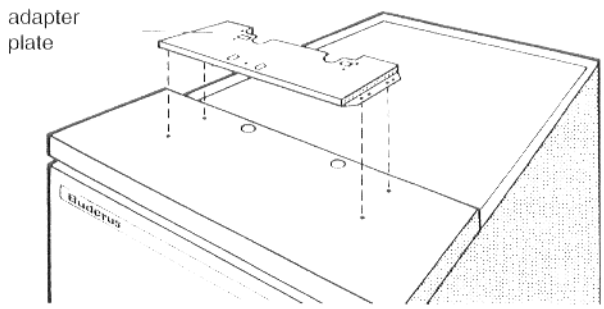

Fig. 9 - Schematic illustration

Control panel

Note:

The figures show the control panel HS 3000. The procedure for installing the HS 4000 control panel is identical.

The control panel is fastened by fixing four hooks in four drill holes in the front hood and the adapter plate.

- Unscrew both self-tapping screws from the terminal cover and remove the hood (Fig. 10).
- Feed capillary leads through the cable passageway and roll out to the length required.
- Position the control panel in such a way that the push-in hooks enter the oval drill holes. Pull the control panel forward and then tilt to the rear until both elastic hooks click on the right and left (arrows - Fig. 10).
- Unscrew two self-tapping screws from the cover of the cable passageway and take off the cover.

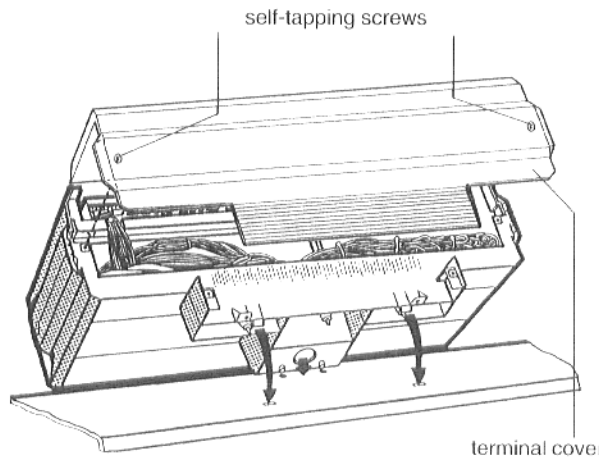

Fig. 10

- Lay cable on the thermal insulation to the front boiler hood.
- Screw on the base of the control panel on the inside of the cable passageway on the right and left with two self-tapping screws on the front boiler hood (Fig. 11).

  Make the electrical power supply connection according to the circuit diagram.
- Insert the cable clips, with the connection cable in place, in the clip frame and fasten the cable by pushing down the lever (Fig. 11).

  Take care to lay the cable and the capillary leads properly.

  Fixed connection to comply with VDE 0100 and VDE 0722.

  Local codes must be observed.

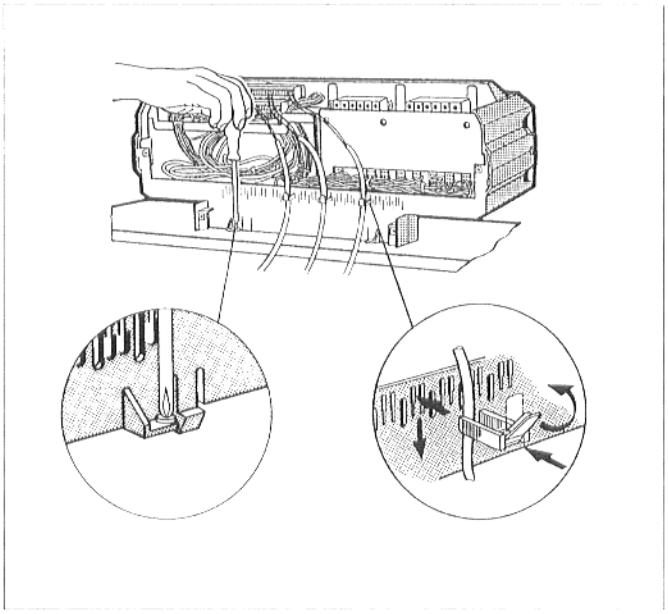

Fig. 11

- Insert sensor into the immersion well until it stops (Fig. 12).

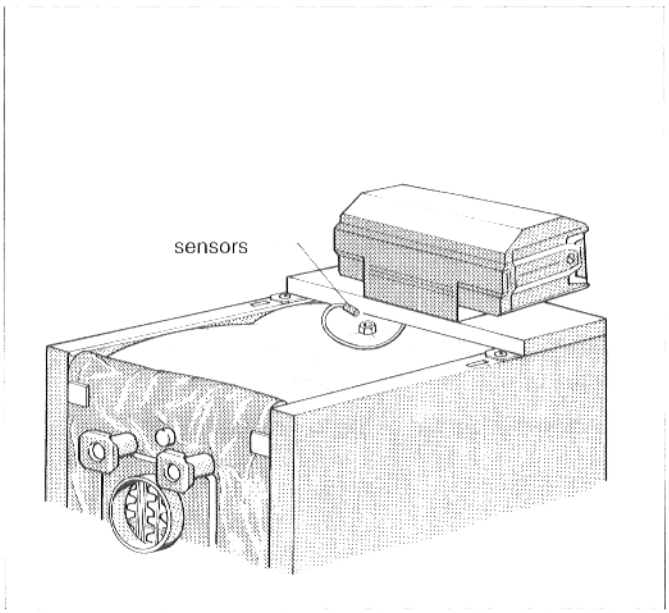

Fig. 12

- The plastic spiral for holding the sensors together is automatically pushed back (Fig. 13).

  To ensure contact between the immersion well and the sensor surfaces, thus ensuring reliable temperature transfer, the equalizing spring must be pushed in between the sensors (Fig. 13).
- Push the sensor fastener from the side or the top onto the head of the immersion well (Fig. 13).

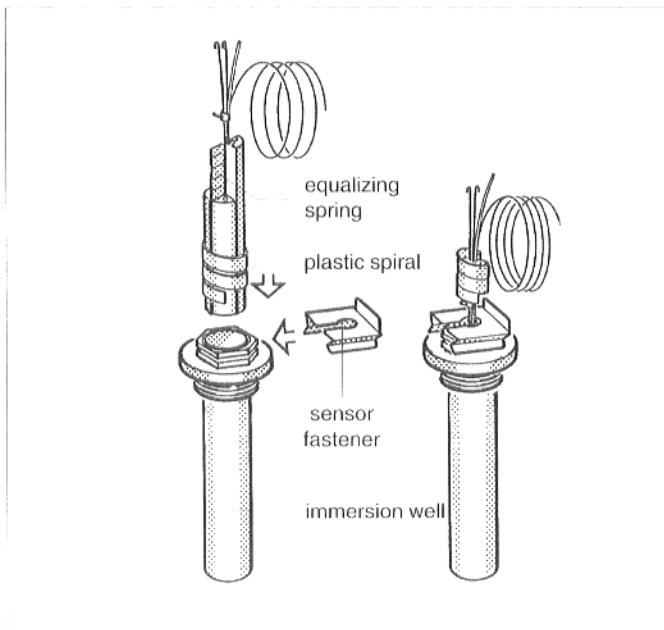

Fig. 13

- Place the rear boiler hood on the upper folded edge of the side panel, pull forward until the two hooks click into the slit in the folded edge of the side panel (Fig. 14).
- Screw the rear boiler hood onto the rear of the boiler with two self-tapping screws (Fig. 14).

Burner door, front panel, rating plate

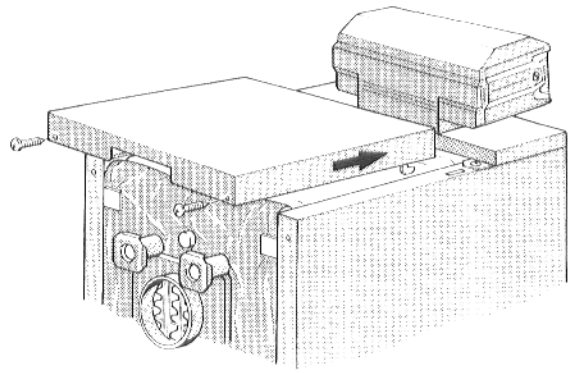

Fig. 14

Notes:

The burner must be fitted to comply with the assembly instructions of the burner's manufacturer.

The door hinging can be switched from the right to the left.

When changing the hinge bolts, the burner door must remain closed.

- Push the hinge bolts upward and insert into the hinges on the other side (Fig. 15).
- Shorten the burner cable to the length required for use.

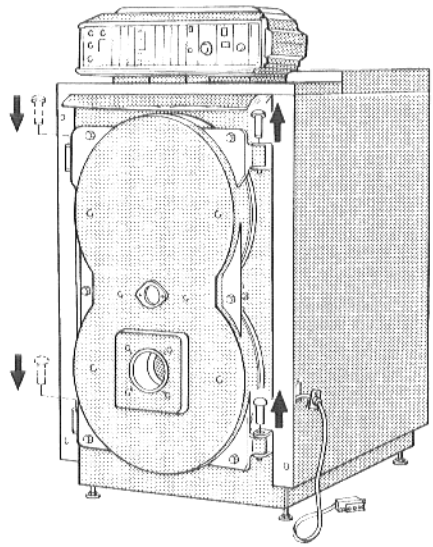

Fig. 15

- Fasten the burner cable by turning the plastic shell or the nuts (Fig. 16).
- Attach the cover plate with or without the burner cable in the left-hand or right-hand side panel and fasten at the top with a self-tapping screw (Fig. 16).
- Fasten the second rating plate and transparent pocket on the right-hand or left-hand side panel to suit local conditions (Fig. 15).

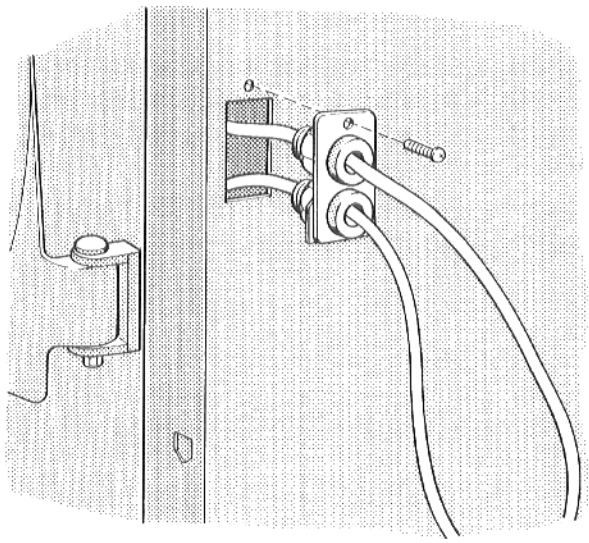

Fig. 16

Note:

After putting into operation, the front panel is attached by inserting the four aluminium pins at the front into the slits in the folded edge of the side panel (Fig. 17).

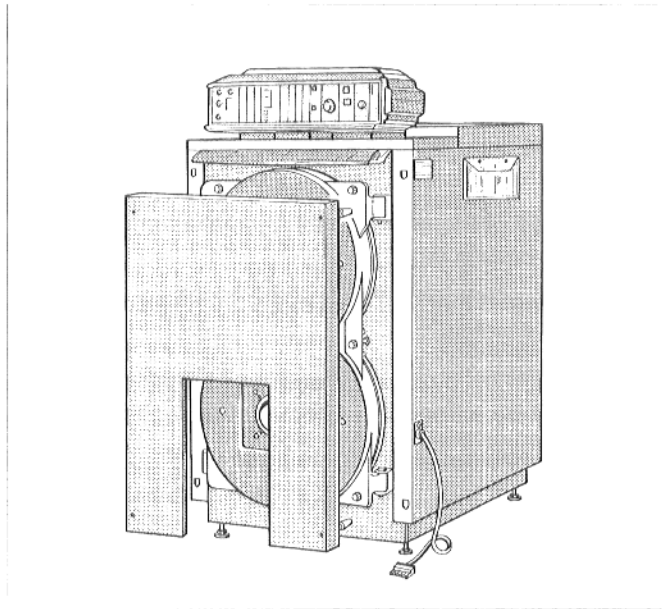

Fig. 17

6. Putting into operation

- Check whether the fire tube is fitted in the combustion chamber to the stop (Figs. 18 and 19).
- Check whether turbulators are fitted to match the boiler size (Fig. 18).
  For boiler sizes 95 and 145, only the pockets 1, 2 and 3 are fitted (Fig. 18).
  The stop must touch the bottom (arrow - Fig. 18).
- Check whether the burner door is screwed on with six hexagonal head bolts (Fig. 15).

Putting into operation must be done to comply with the operating instructions for the boiler, burner and the electronic heating circuit control panel.

The owner/operator must be familiarized with the function and operation of the installation when handing it over and the technical documents must also be handed over.

Attention must be drawn to special points to be noted for maintenance. A maintenance contract should be recommended.

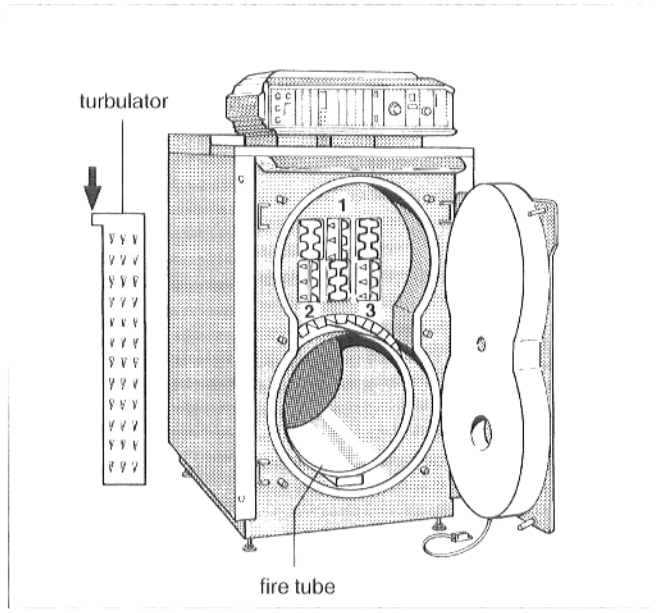

Fig. 18

7. Maintenance

According to the German heating installation ordinance - § 9 -, the operator/owner is obliged to carry out maintenance and cleaning of the heating installation or to have it carried out.

Maintenance of the entire heating installation must be carried out once a year.

We recommend that you take out a maintenance contract.

Maintenance on parts conveying gas may only be carried out by a licensed specialist company.

For burner maintenance, the maintenance instructions of the burner manufacturer must be observed!

Cleaning the boiler

To clean the boiler, only Buderus cleaning tools* may be used.

Before manipulating the burner in any way, shut off the power supply to the installation!

* Accessories to be ordered separately.

- Lift the front panel slightly and remove.
- Unscrew the hexagonal head bolts from the burner door.
- Open the boiler door, remove the fire tube from the combustion chamber and the turbulators from the downstream heating pockets (Fig. 19)
- Brush the heating surfaces well to the **rearmost end** with the cleaning brush in the horizontal direction. Remove combustion residues.
  For this purpose, unscrew the lid of the cleaning opening on the rear of the boiler with the two wing nuts (Fig. 20).
- Insert the fire tube again in the combustion chamber up to stop (Figs. 18 + 19).
- Insert the turbulators again in the downstream heating pockets.
  For boiler sizes 95 and 145, only pockets 1, 2 and 3 are fitted with turbulators (Fig. 18).
  The stop (arrow - Fig. 18) must make contact below.
- Check the sealing cord (boiler door, cleaning opening) and replace if necessary.
- Close the boiler door again and screw tight with the hexagonal head bolts (Fig. 15).
- Screw the cleaning opening tight again (Fig. 20).
- Attach the front panel with the aluminium pins on the right or left side first into the slit in the folded edge of the side panel and press on (Fig. 17).

When cleaning with spray, observe the operating instructions for the cleaning equipment!

The spray must not penetrate into the control panel!

Please observe the Technical Description and Operating Instructions for Burners when performing maintenance on the burner!

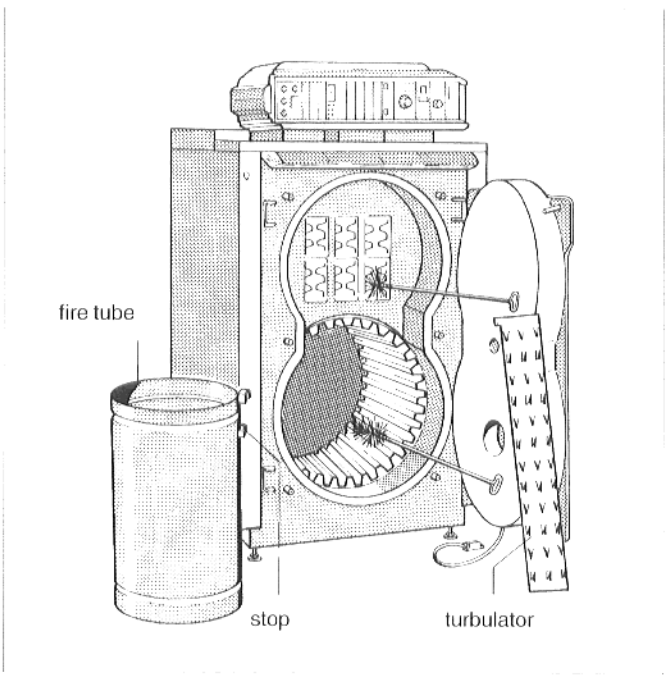

Fig. 19

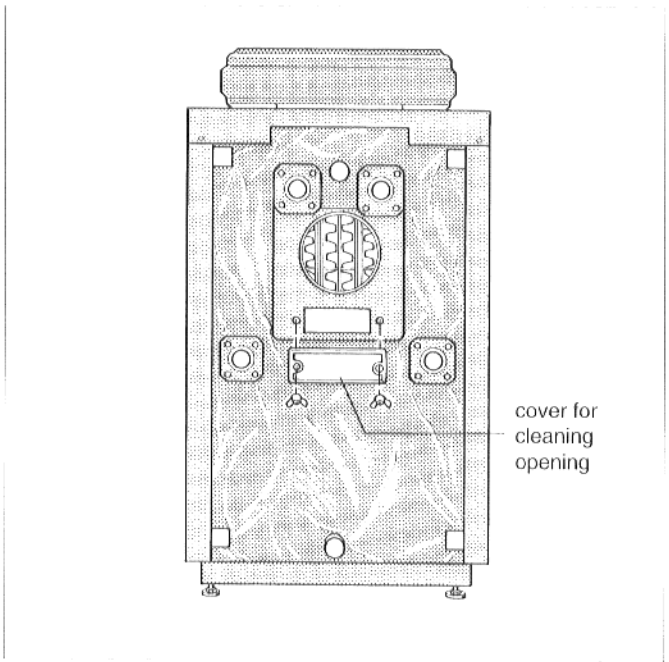

Fig. 20

8. Installation and service certificate

Type _____ Operator _____

Manufacturer's no. _____ Location _____

Installing contractor _____
(specialist company)

The system described above has been installed and put into operation according to all applicable codes and regulations.

The technical documents have been delivered to the operator who has also been made familiar with the safety instructions and the maintenance of the installation described above.

_____ _____

Date, signature of installing contractor Date, signature of operator

For the installing contractor

Type _____ Operator _____

Manufacturer's no. _____ Location _____

The technical documents have been delivered to the operator who has also been made familiar with the safety instructions and the maintenance of the installation described above.

_____

Date, signature of operator

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