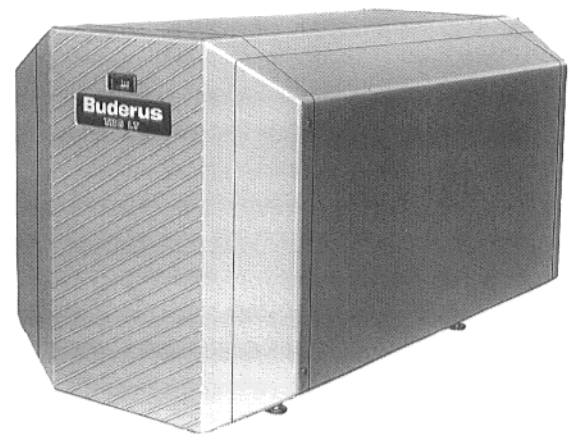
475171 - 2/95 USA

Buderus
HYDRONIC SYSTEMS

Installation and maintenance manual

Indirect-fired water heater LT 135-300



LT 135-300

Please save these instructions!

1. General

The indirect-fired water heaters of the LT series are installed at floor level underneath a boiler.

A fastening bracket for installing the boiler on the indirect fired domestic hot water tank is provided with the tank.

The indirect-fired water heater is delivered assembled.

It consists of the storage tank with high-resistance foam insulation and an outer jacket.

To protect the indirect-fired water heater against corrosion, the inner walls and heating coils are thermoglazed.

In addition, the in-built magnesium anode serves to prevent corrosion. An inert anode can also be installed in place of the magnesium anode.

For installing the piping between the indirect-fired water heater and the boiler, the applicable installation instructions have to be followed.

All the information necessary for operating can be found in the operating manual for the control system and the boiler.

The testing and replacement of the magnesium anode are described in the replacement instructions.

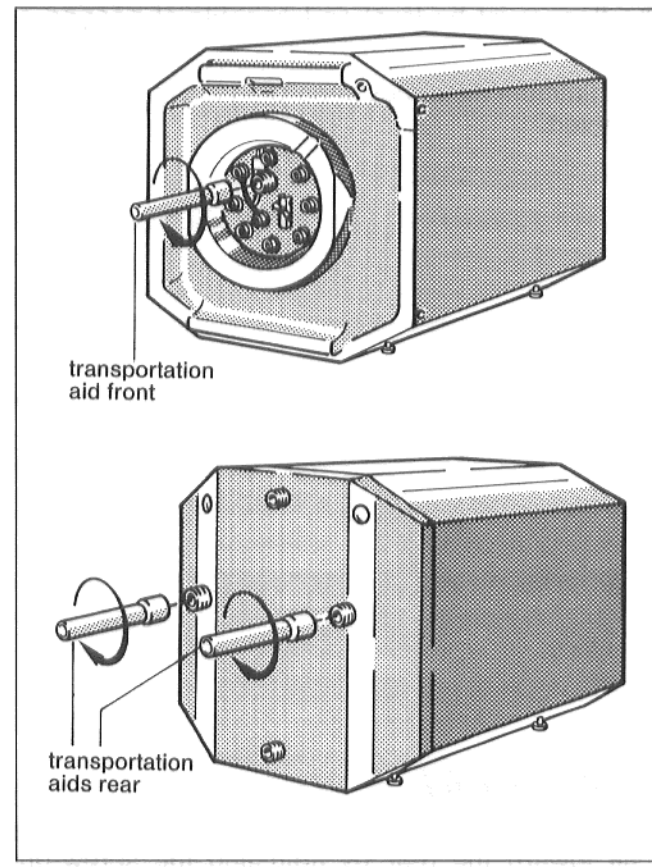


Fig. 1

Transportation

Note:
Notes on the transportation, removal of packaging and the installation of the adjustable screw-on feet are found on the last page of this installation manual.

The transportation of the indirect-fired water heater can be made easier by screwing transportation aids* into the connection piece on the inspection port lid and the storage supply and return connections (Fig. 1).

* field-installed; not provided by Buderus.

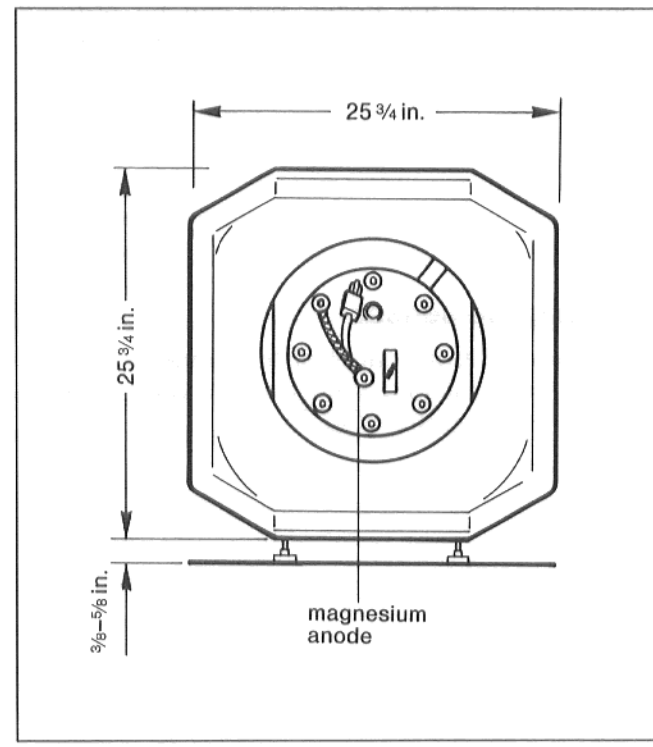


Fig. 2

Dimensions and weight

model number	storage tank size gall.	length L inches	weight lb.
LT-135	35	32	190
LT-160	42	36 1/4	220
LT-200	52	42 3/8	247
LT-300	79	57 3/4	364

Load capacity of all storage tank sizes max. 1100 lb.

2. Locating the water heater

The indirect-fired water heater must be installed indoors in a location heated to a minimum of 32 °F.

The indirect-fired water heater must not freeze. If there is danger of freezing, take appropriate action.

The floor must be level and capable of bearing a load.

The minimum distances according to Fig. 3 must be observed.

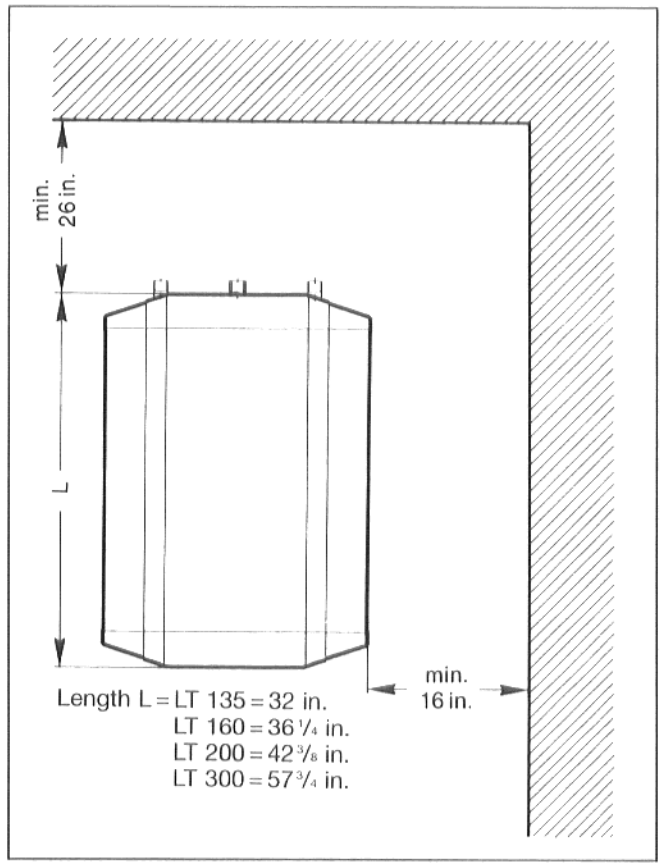


Fig. 3

3. Assembly

- Align the indirect-fired water heater with a slight tilt toward the rear by adjusting the screw-on feet (Fig. 4).

Note:
The screw-on feet are packaged in the flue connection of the boiler, but can be ordered separately if the indirect-fired tank is being installed by itself.

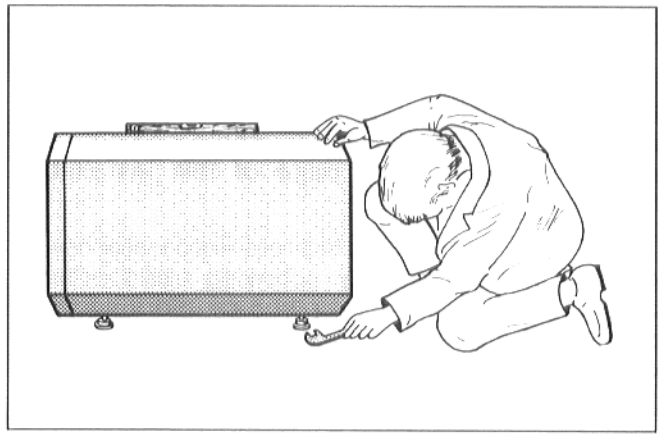


Fig. 4

Installing the sensor

- Remove the front panel of the storage tank toward the front and take out the high-resilient foam insulating disk (Fig. 5).

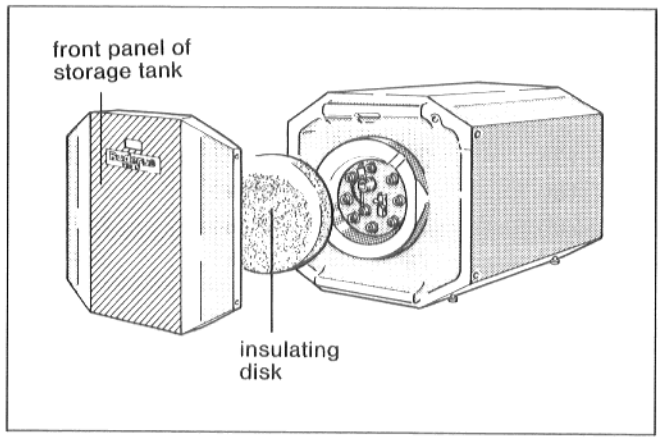


Fig. 5

- Insert domestic hot water sensor* into the cable channel from the rear of the storage tank (Fig. 6). **Note:** For the LT 300, the sensor lead has to be extended with the extension lead** that has also been supplied.

* Supplied with the control panel
** Supplied with the LT 300

- Pull out the lead plug from the control panel and loosen the plug from the lead.
- Fit the plug to the free end of the extension lead and plug it back into the control panel.
- Connect the free end of the sensor lead to the extension lead using the coupling (pay attention to the supplementary sheet).

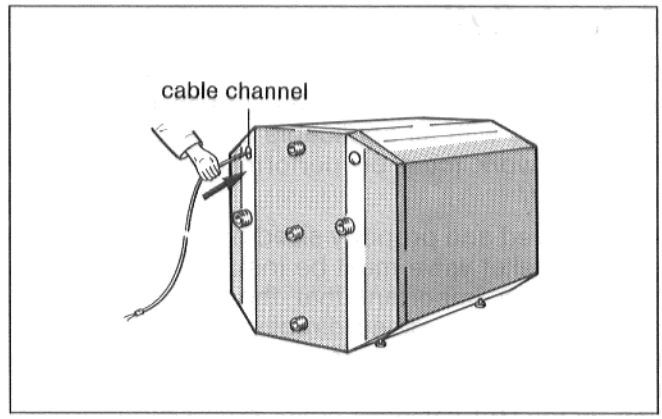


Fig. 6

- Pull the sensor out of the channel hole on the front of the storage tank and take it on to the sensor fastener on the inspection port lid (Fig. 7).

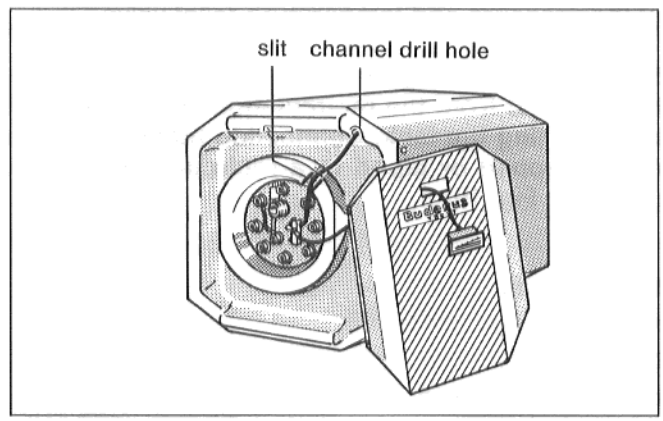


Fig. 7

- Loosen the wing-nut of the sensor fastener, insert the sensor into the mounting plate to match its geometrical shape (Fig. 8).
- Tighten the wing-nut.

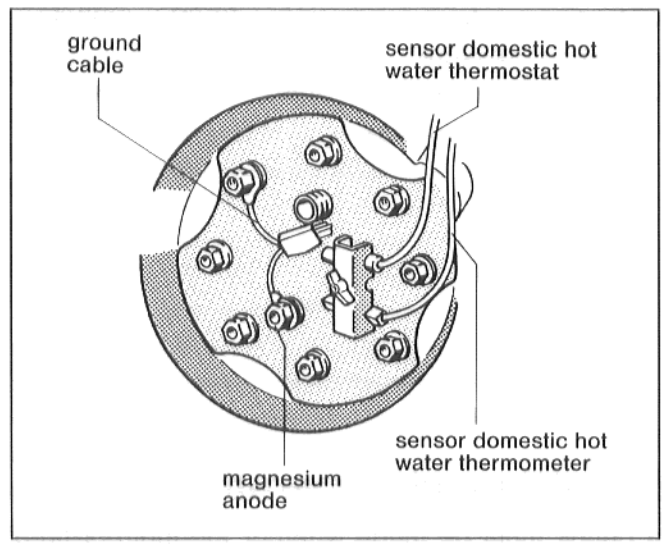


Fig. 8

Magnesium anode

- Make sure that the ground cable of the magnesium anode is connected to one of the fastening screws of the inspection port lid (Fig. 8).
- Insert insulating disk in front of the inspection port lid (Fig. 9).
- Push the front panel of the storage tank onto the tank from the front and screw tight with 2 self-tapping screws each on the left and the right in the side panel of the storage tank (Fig. 9).

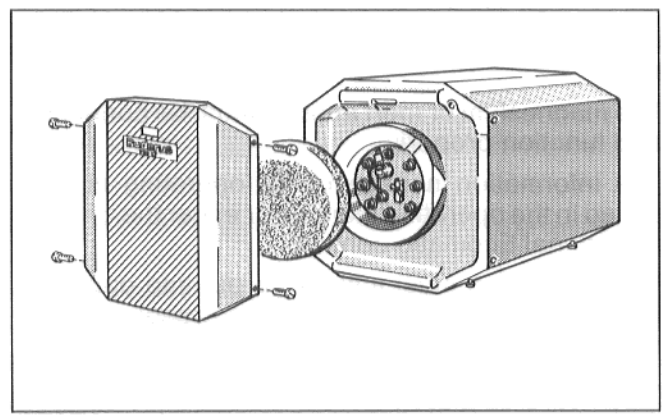


Fig. 9

Control panel Ecomatic 4000

- Connect the plug on the ground lead with the lead from the control panel (Fig. 8).

  Note: For the LT 300, the lead on the control panel must be replaced by the longer cable that has been supplied.

  For other types of control panel, the plug is not used.

4. Installation

The installation of the indirect-fired domestic hot water tank and all associated piping must be in accordance with all applicable codes and regulations. All work must be performed by a licensed contractor.

An approved and properly sized pressure and temperature relief valve must be installed as shown in Fig. 10. It is important that the P&T relief valve discharge line be piped directly to a drain without any shutoff valves or restrictions, and that the discharge line be the same diameter as the connection on the P&T valve.

It is adviseable to periodically check the operation of the pressure and temperature relief valve.

NOTE: The hoisting ring (Fig. 15 on page 8) must be removed from the recirculation connection EZ before filling the tank. Connection fitting EZ must either capped or piped to a recirculation line as shown in Fig. 10.

Safety limits

heating water temperature	max. 160 °C	(320 °F)
operating pressure (hot water)	max. 25 bar	(362 psi)
domestic hot water temperature . . .	max. 95 °C	(203 °F)
operating pressure (domestic hot water) . .	max. 10 bar	(145 psi) *

* 100 psi max. in Massachusetts

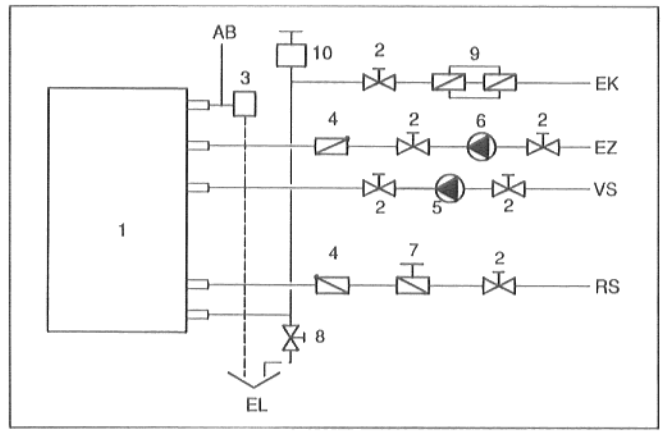


Fig. 10

1 indirect fired domestic hot water tank
2 service valve
3 P & T valve
4 flow check
5 circulator
6 optional recirculator
7 air purge valve
8 drain valve
9 backflow preventer
10 vacuum relief

AB = domestic hot water out
EK = domestic cold water in
EZ = domestic water recirculation
VS = boiler water supply
RS = boiler water return
EL = drain

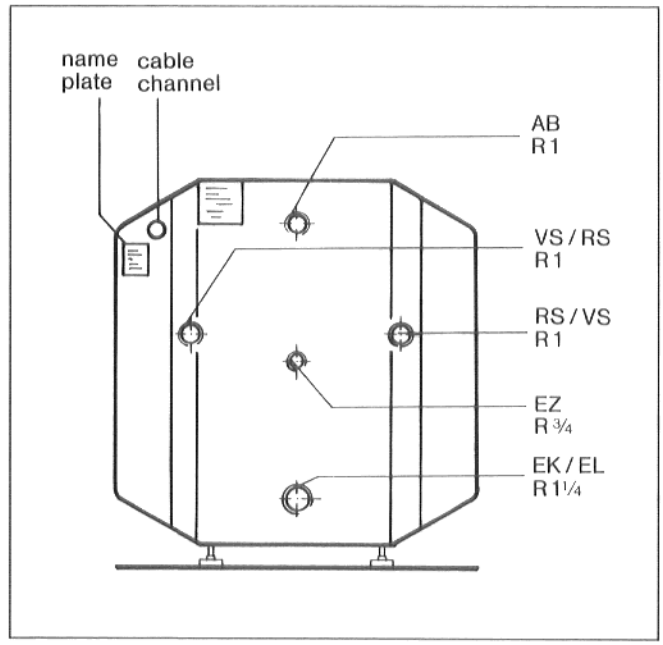


Fig. 11

5. Putting into operation

A check must be made whether the indirect-fired water heater is filled and cold water can flow into the storage tank.

All connections and pipes must be checked for leaks.

The magnesium or inert anode * must be connected and function properly.

The information necessary for operating is contained in the operating manual for either the SP-34 D or optional Ecomatic control.

The installation must initially be put into operation by the installing contractor in the presence of the owner of the installation.

* accessory

VS = boiler water supply] interchangeable
RS = boiler water return]
AB = domestic hot water outlet
EZ = circulation
EK / EL = cold water inlet / drainage

6. Maintenance

If there is no written agreement to the contrary, the indirect-fired water heater may only be filled with drinking water.

In general it is recommended that a licensed contractor or maintenance company check and clean the indirect-fired water heater at least once every 2 years.

If the water supply is unfavorable (hard to very hard water) and the temperature load is high, more frequent cleaning is necessary.

Cleaning

In most cases, mechanical cleaning is sufficient. It is carried out as follows:

- Close the domestic water supply valve and drain the tank. Do not drain the boiler water from the heat exchanger.
- Unscrew the 2 self-tapping screws each on the right and left of the side panel (Fig. 12).
- Remove the front panel of the storage tank toward the front and take out the high-resilient foam insulating disk (Fig. 12).
- Unscrew the hexagonal head bolts from the inspection port lid and remove the lid with the magnesium anode and seal (Fig. 13).
- Hose out the storage tank with a powerful stream of cold water with approx. 58 – 73 psi pressure (circulating hot water through the heat exchanger will facilitate the removal of foreign material).
- If there is a lot of calcification, the residues should be removed with an industrial vacuum cleaner with a plastic suction tube.
  Note: Never break up a calcified crust with a hard, sharp-edged object because this could damage the thermoglaze on the inner walls.
- Check magnesium anode and seal. If the anode has diminished to a diameter of 5/8 – 3/8 in., it should be replaced. Replace seal if necessary.
- Replace inspection port lid with magnesium anode and seal.
- Feed the sensor leads through the slit in the thermal insulation (Fig. 13).
- Insert the ring of the grounding cable and screw in the hexagonal head bolts (Fig. 14).
  Note: Screw in all hexagonal head bolts 'finger tight' and then tighten a three-quarter turn with a wrench (≙ the recommended tightening torque of 39 ft-lb with a torque wrench.)
- Check inspection port lid for a tight fit.
- Insert thermal insulation in front of the inspection port lid and screw the front panel tight with 2 self-tapping screws each on the right and left (Fig. 12).

Inert anode accessory

The protective function of the inert anode is indicated by a green signal lamp on the control panel (shockproof plug).

If there is a malfunction (no protection against corrosion), the signal lamp flashes red.

If this is the case, please get in touch with your maintenance company straight away.

The anode should not be soiled with oil or grease.

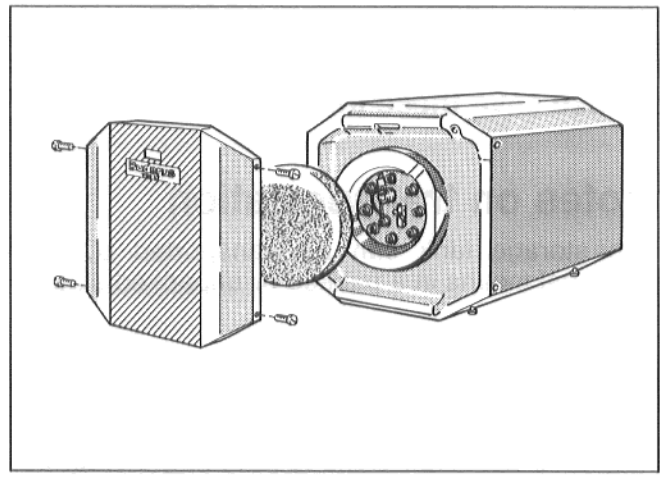


Fig. 12

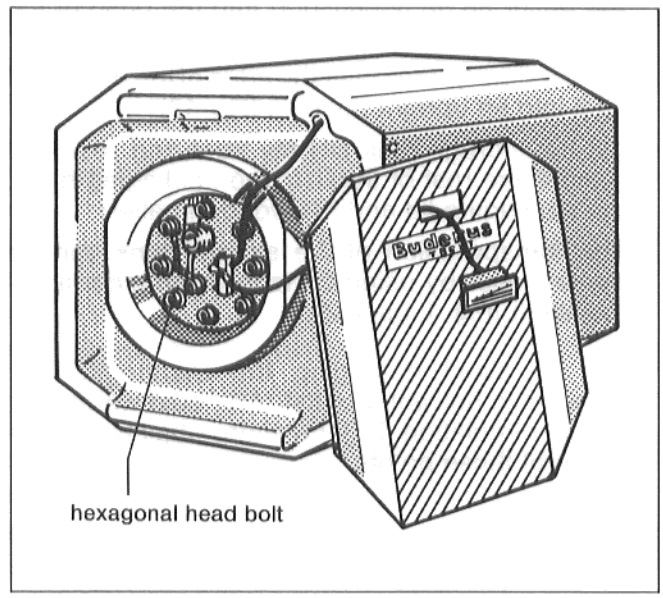


Fig. 13

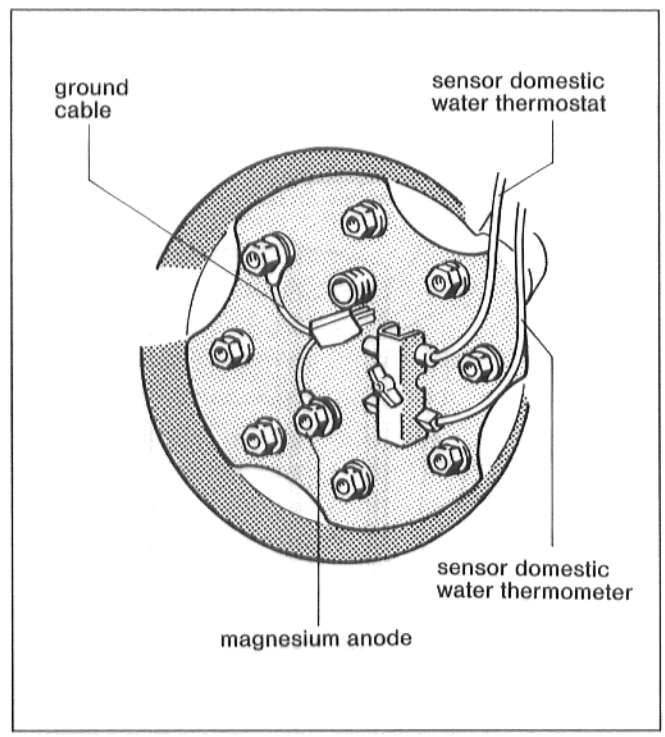


Fig. 14

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Notes on transportation

The storage tank can be transported by conventional means in a packed or unpacked state.

Adjustable screw-on feet

- Cut out the packaging film on the side opposite the sticker "Boiler-Storage tank connection" according to Fig. 15 and remove only the cut-out.
- Remove both wooden corner strips.
- Screw in 4 adjustable screw-on feet (packed with the boiler as an accessory) into the base of the storage tank to 3/8 – 5/8 in. (Fig. 16).
- Tilt the storage tank over the edge of the pallet and lift it into an upright position (Fig. 17).
- Lift the storage tank slightly front and rear and remove the rest of the film, the packaging base, the packaging lid and the wooden pallet.

  The transportation of the storage tank can be made easier by using transportation aids (field-installed) (Fig. 1, page 3).

Note: To avoid damaging the thermoglaze at the domestic hot water outlet (AB), cold water inlet (EK) and circulation (EZ), no sharp objects may be inserted at these points.

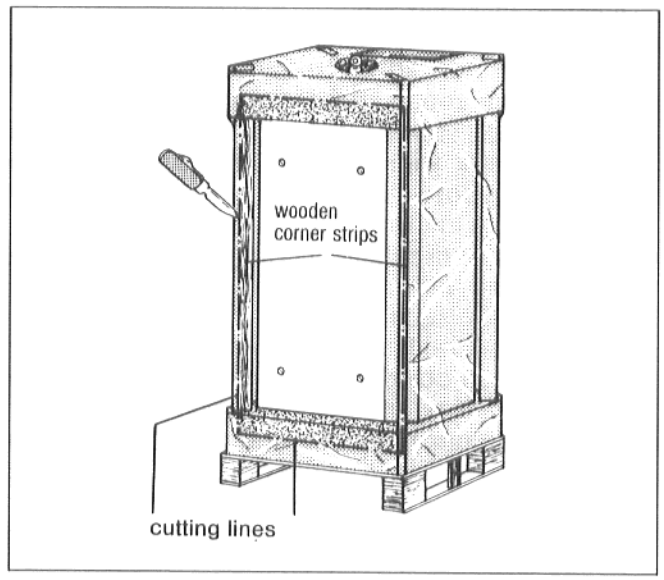

Fig. 15

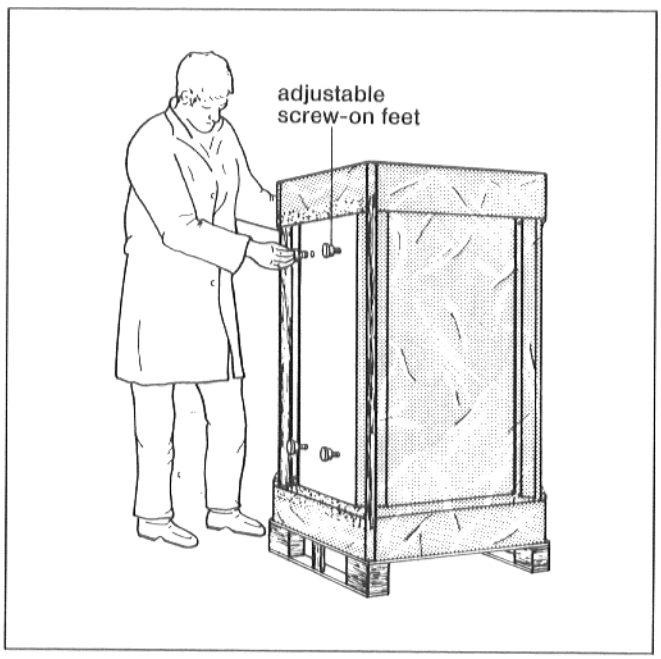

Fig. 16

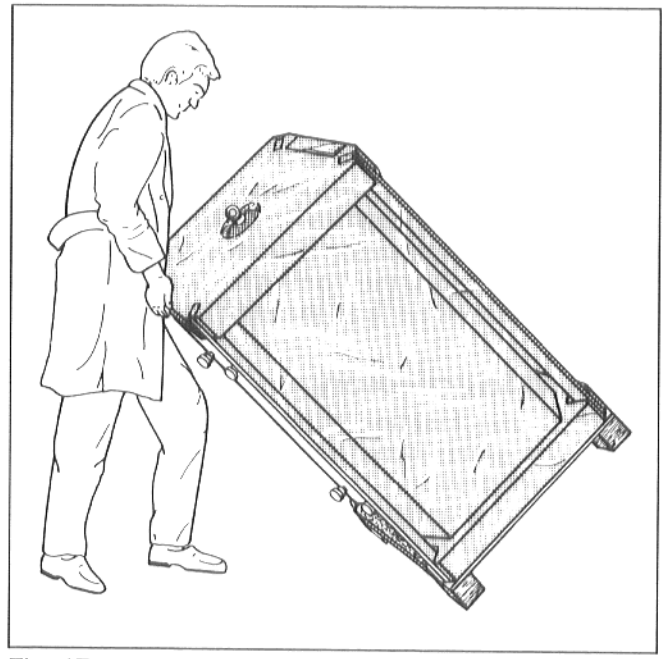

Fig. 17