

## Assembly instructions for »Lollar« 45.1 oil/gas special boiler for overpressure firing

### General

In the case of packaged boilers the high pressure sealing compound must be applied immediately after installation on site.

The following order of assembly will ensure proper functioning of the boiler, therefore it is essential that these instructions be strictly adhered to! Observe additional instructions for steam boilers, if applicable. Eventually install a sound proofing equipment.

### Order of Assembly

1. **Foundation and Location**
  - 1.1 The foundation must be smooth and level!
  - 1.2 Observe wall clearances!
  - 1.3 Sound proofing equipment.
2. **Assembly of boiler sections**
  - 2.1 Position rear section.
  - 2.2 Assemble front and rear intermediate sections as per the table.  
PAY ATTENTION TO THE WHITE MARKINGS!
  - 2.3 Insertion of the nipples.
  - 2.4 Application of boiler compound. Observe notices!
  - 2.5 Insert assembly tools.  
Do not assemble more than 2 sections at a time!  
Pay attention to Figs. 5-7.
  - 2.6 Position tie bars. Insert set of springs at rear and front section. Turn nuts by hand, then approx. 1-1 ½ turns with spanner.
  - 2.7 **Align the boiler**  
Check that the sectional feet rest uniformly on boiler foundation. E.g. use strips of paper. Use wedges only if required.
3. **Conduct a hydraulic test**  
Plug all orifices on the boiler with plugs and flanges.
4. **Application of high pressure sealing compound**  
The places where the compound is to be applied must be free of grease, rust and be dry. First apply primer and then high pressure sealing compound with gun.
5. **Installation of fittings**  
Make sure that the burner door and blank plate (rear section) are doubly sealed.
6. **Assembly of boiler jacket**
7. **Assembly of control module**
8. **Assembly of oil burner**

Check the quality of the water before filling the installation.

### Delivery

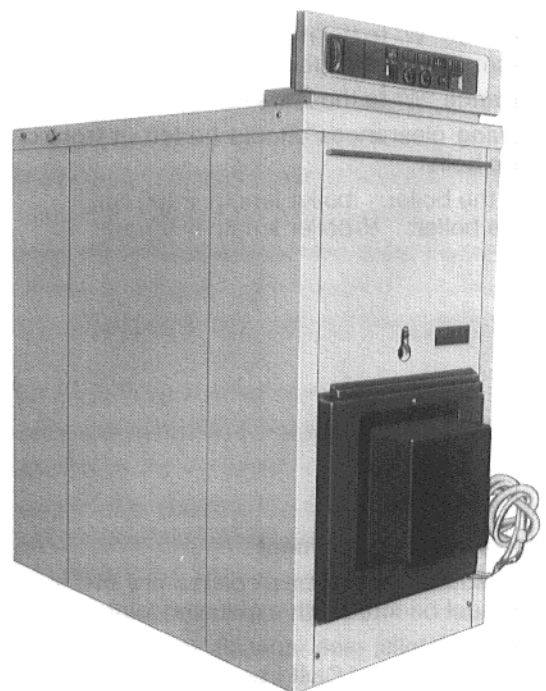
Boiler in loose sections.

Boiler fittings in timber case.

Rear brick in cardboard carton.

One bundle of tie rods and cleaning tool handles.

Control module in cardboard carton.



# 1. Boiler Foundation and Location

## 1.1 Boiler Foundation

It is recommended that the boiler is mounted upon a concrete or brick foundation about 5 – 7 cm height. The foundation should be prepared according to sketch and the table underneath.

The foundation or location must be smooth and level.

See sketch no. 2 for location of the boiler on the foundation.

It is advisable to use flat plates 100x5 or L bars 100x50x6. The four frame members should be welded together before placing into position in the concrete.

The floor loading with the base frame is approx. 1.0 kp/cm<sup>3</sup>.

The plinth must be enlarged by the width of the calorifier for »Lollartherm« boilers.

Flat plates are not required in this part of the foundation.

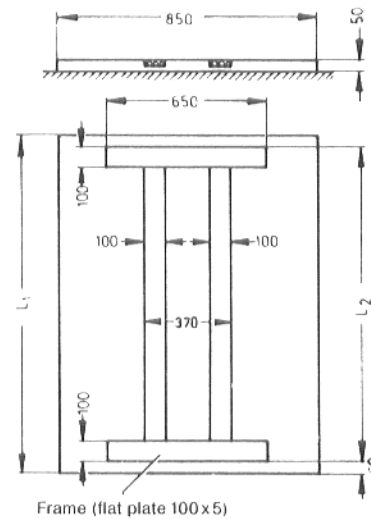
No. of sections	8	9	10	11	12	13	14	15	16
Foundation length L <sub>1</sub>	1470	1650	1830	2030	2190	2370	2550	2730	2950
Frame length L <sub>2</sub>	1350	1530	1710	1910	2070	2250	2430	2610	2790

## Tools and materials required for assembly

The following tools and materials are required to assemble the boiler:

1. One set of special boiler section assembly tools
2. Hammer and wood or rubber mallet
3. Half round smooth file
4. Screwdriver
5. Broad chisel
6. Spanners sizes 19, 24, 13 mm
7. Red lead nipple sealer (viscous)
8. Boiler jointing compound (of such a consistency that it is easy to apply), if too thick dilute with soluble glass – never with water

9. Graphite lubricant (for coating nuts and bolts)
  10. Brush and cement spatula
  11. Cotton waste
  12. Fine emery cloth
  13. Machine oil
  14. Solvent (petrol)
  15. High pressure compound, primer
  16. Sealer gun
- Red lead nipple sealer and boiler compound are supplied with the boiler in sufficient quantity.



Sketch 1

## 1.2 Location of boiler

When setting up the boiler make sure that there is a minimum clearance to the right (for opening the burner door) and to the left (for the assembly of the boiler jacket). Observe these clearances also in case of several boilers installed side-by-side.

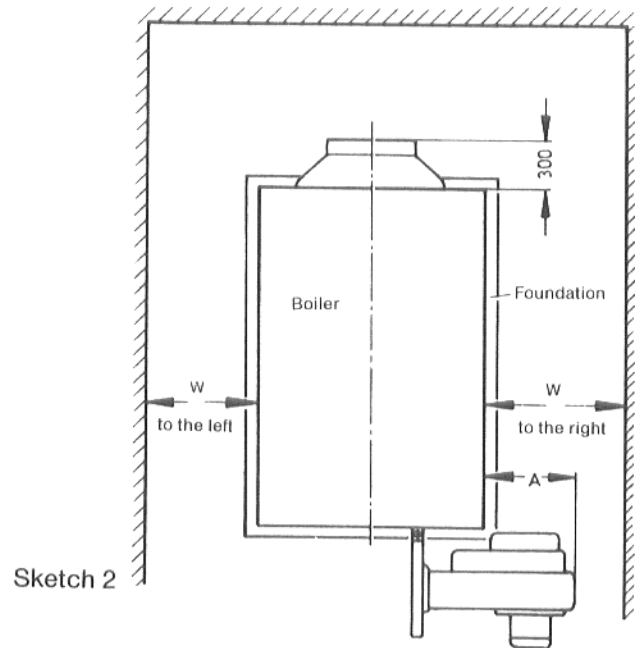
Wall clearance "W" to the right – projection of the burner "A" + 10 cm, but not less than 80 cm.

Wall clearance "W" to the left – not less than 50 cm.

The following clearances should be left in front of and behind the boiler.

In front of the boiler: boiler length + 100 cm.

Behind the boiler: 1/2 boiler length + 50 cm.



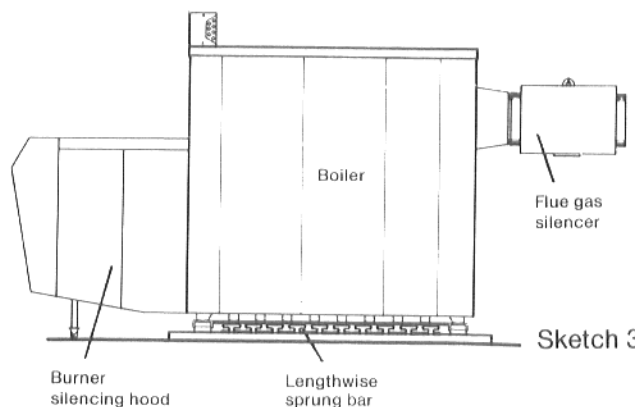
Sketch 2

## 1.3 Sound proofing equipment

If noise absorbing boiler base plates are installed, the pipework must be fitted with expansion joints.

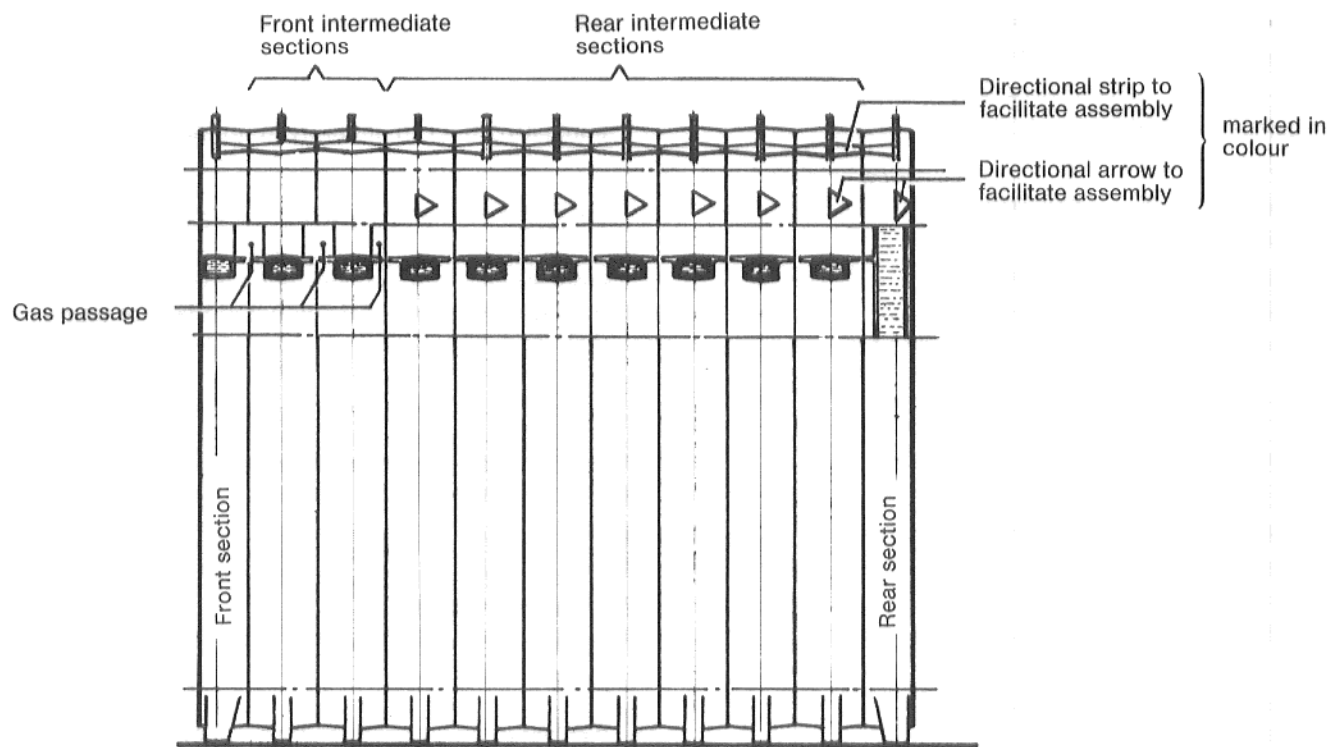
(For further details, see special publication "Sound Proofing Equipment for Cast Iron Boilers".)

Please ask for special literature, if required.



Sketch 3

# Layout of the intermediate sections for »Lollar« 45.1 boilers



Total no. of sections	Front intermed. sections	Rear intermed. sections
8	1	5
9	1	6
10	1	7
11	2	7
12	2	8
13	3	8
14	3	9
15	4	9
16	4	10

Assemble the rear and front intermediate sections as per the above sketch and the table (see also pages 4-6).

Pay attention to the coloured markings when assembling the boiler sections.

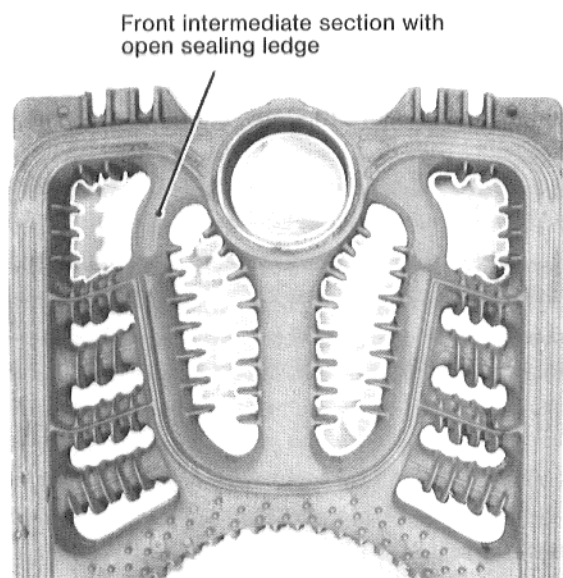


Fig. 1

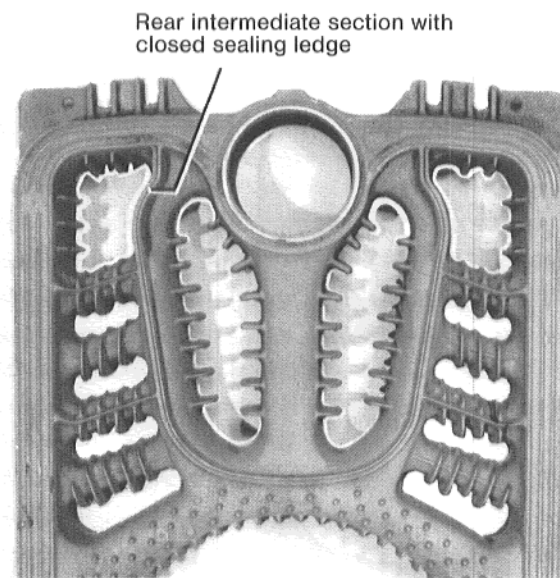


Fig. 2

No compound on the nipple port sealing surface top and bottom.

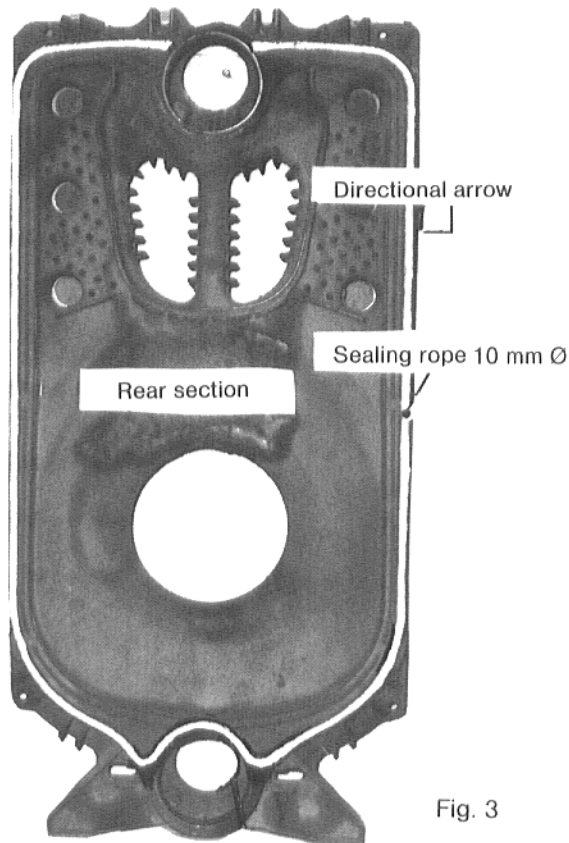


Fig. 3

Compound in the area around the smoke collecting channel up to the sealing rope.

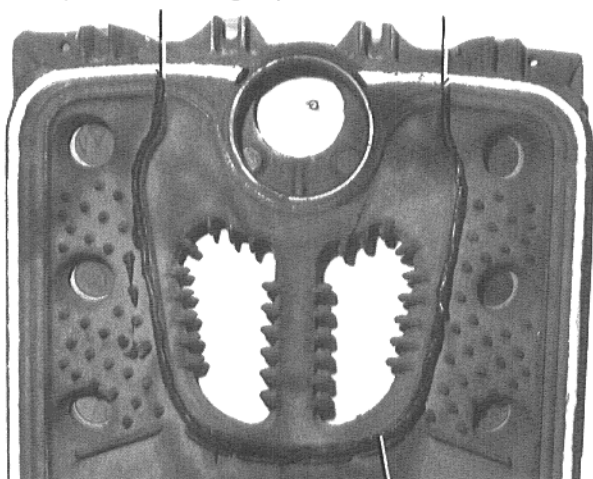


Fig. 4 Boiler compound

Intermediate section rear view directional arrow.

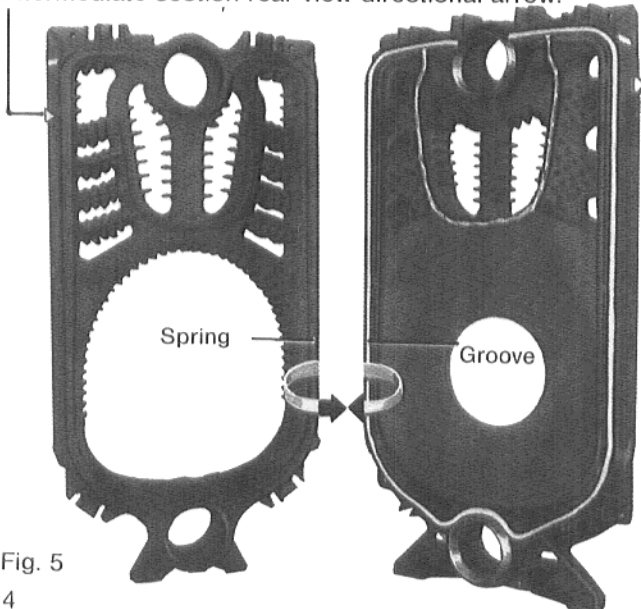


Fig. 5

## 2. Assembly of boiler sections

Before pressing the front and rear boiler sections together, remove washers and nuts at the stud bolts of the nipple ports.

2.1 Place **rear section** in exact location (with white directional arrow). Prop securely in upright position.

2.2 Pay attention to the white markings when assembling the boiler sections (directional ledge and arrow).

All boiler sections have a cast-on assembly alignment ledge in the top right-hand corner (Fig. 5, 6, 8). Additionally, the rear section and the rear intermediate sections (with closed sealing ledges) have an arrow pointing **towards the rear** on the side.

Before assembly of boiler sections, clean boiler and nipple sealing surfaces thoroughly with rag soaked in petrol. Coat nipples and section nipple ports uniformly with red lead.

2.3 Beginning with the rear section, insert crosswise the nipples in the nipple ports with light taps (with wood or rubber mallet).

Be sure to remove any burrs caused when hammering in this manner.

2.4 **Sealing of boiler sections by using sealing rope and boiler compound (black cement).**

The boiler is assembled and sealed according to the groove and tongue system (Fig. 5).

The sealing grooves of the sections point towards the front section during assembly. The grooves and tongues must be clean and dry when this is done. Insert into the outer sealing ledge sealing rope of length 3600 mm and diam. 10 mm, starting either from the left or the right from the top nipple port, making sure that the ends of the rope (with tape wound around them) fit home in the ports (Fig. 3).

Apply compound in the area around the smoke collecting channel; it should form a cohering bead jutting out of the groove by about 3-4 mm and extending right and left right up to the sealing rope (Fig. 4).

The sealing rope (already cut to length) and the compound are supplied in sufficient quantity with the boiler.

Place the first rear intermediate section against the rear section (Fig. 5).

**Pay attention to coloured markings!**

Further assembly and application of compound as already described.

Do not assemble more than two sections at a time.

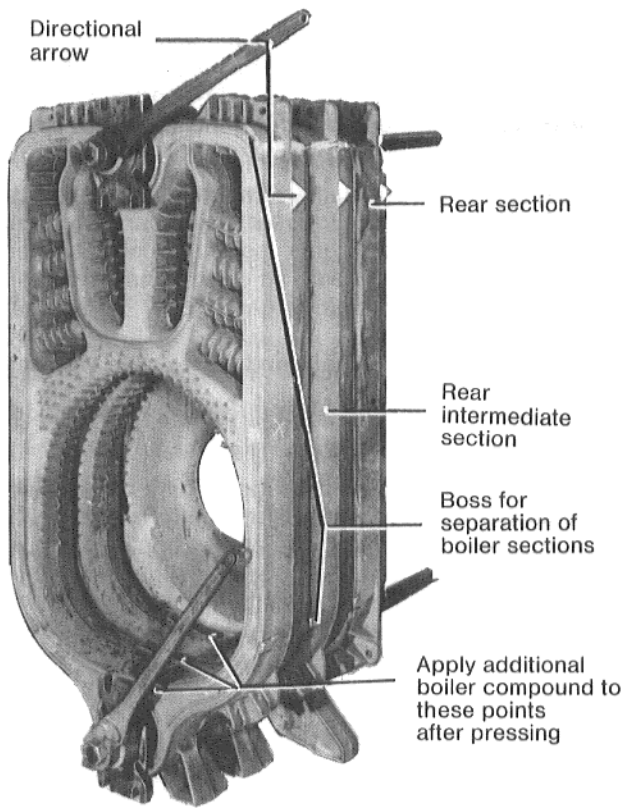


Fig. 6

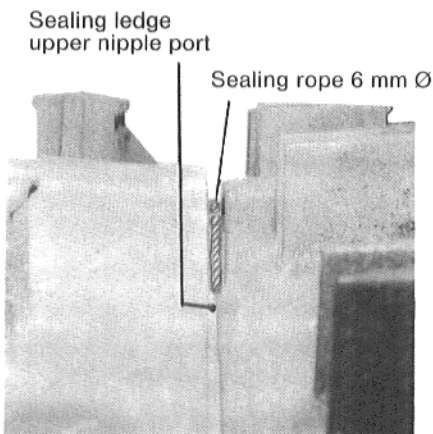


Fig. 7

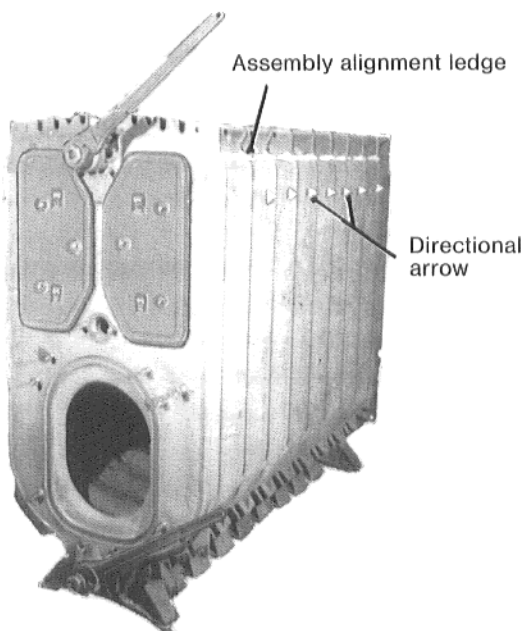


Fig. 8

2.5 Insert **assembly tools** and press the boiler sections together.

**Attention!**

When the machined surfaces are in contact apply in any case no further pressure. There will be a visible cleft on the outside of the boiler sections (groove and tongue).

**Attention!**

After two sections have been pressed together more boiler cement must be applied above the nipple port abutment (Fig. 6).

After each section has been fitted press the 180 mm long and 6 mm thick piece of rope into the crevice near the top nipple ports, using a screwdriver or similar implement (Fig. 7).

**Assembled boiler block »Lollar« 45.1/10 sects.**

- 1 Rear section
- 7 Rear intermediate sections (with directional arrow)
- 1 Front intermediate section
- 1 Front section

## 2.6 Position the rods

After the assembly of the boiler block has been completed, loosen screwed driving bars. Insert the **tie bars** at the top on the left and right-hand side and at the bottom on the left and right-hand side (see Figs. 9 and 10).

Fit set of springs consisting of washer, 8 cup springs, washer (see Fig. 9) on the rear section and the front section and tighten nuts be hand, and tighten another 1-1 ½ turns using an open ended spanner. Remove assembly tools.

## 2.7 Align boiler both vertically and horizontally with spirit level.

### Attention!

After the boiler block has been fully assembled, check that the sectional feet rest uniformly on boiler foundation with strips of paper. Use supplied wedges only if required. Position wedges with **light** taps with a hammer so that they are just tight (see Fig. 11).

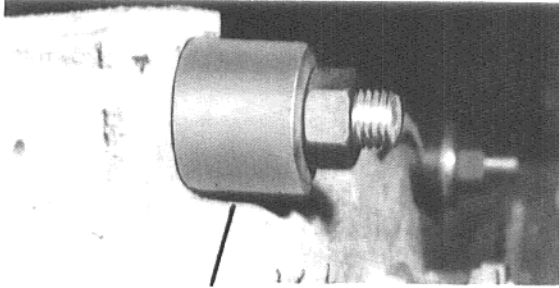


Fig. 9

Set of springs  
(on front and  
rear section)

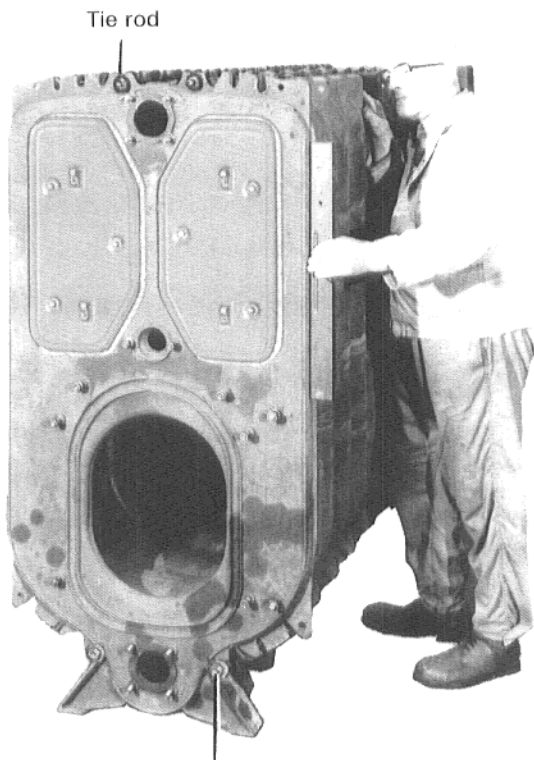


Fig. 10

Tie rod

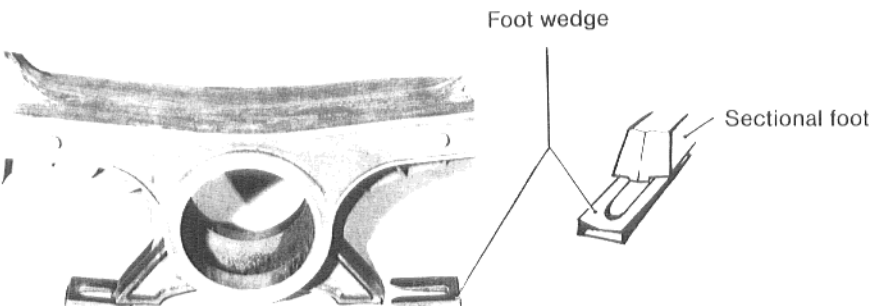


Fig. 11



Fig. 12



Fig. 13

### 3. Hydraulic test

Position upper and lower blank flanges with washers and screw tight.

Plug the upper and lower nippleway orifices and the orifices for safety return and drainage for the **hydraulic test**. Seal control module **sensor pocket** for control instruments on rear section.

At this point in assembly a hydraulic test should be conducted. The test pressure should be equal to at least 1.3 times the working pressure, 4 bars min.

If a nipple is found to be leaking, remove tie rods and separate boiler sections carefully at the bosses available (for separation of boiler sections) using a broad chisel or bolster.

Remove and discard both top and bottom nipples. Clean both nipple ports and reassemble using new nipples. Fit tie rods and repeat hydraulic test.

### 4. Application of high pressure sealing compound

**Caution!** Ensure adequate ventilation during the application of primer to avoid danger to health.

Before applying the **primer**, ensure that the groove formed by adjoining sections is free of grease and rust and is completely dry. Check particularly thoroughly that the boiler is dry after the hydraulic test.

After the groove and the area around have been cleaned and freed of grease, apply primer using a brush on both sides of the groove over a width of approx. 30 mm all around the boiler (see Fig. 12).

Allow a drying period of approx. 30 mins. and then apply the **high pressure sealing compound**. It can be applied conveniently by using the gun provided with the assembly tools. The plastic cartridge must be placed in the gun (pay attention to the application instructions on the cartridge) and the compound applied to the outside of the boiler (see Fig. 13).

The width of the applied compound should be approx. 15 mm and the thickness 5-7 mm.

The slightly angular nozzle is particularly useful for applying compound to parts of the boiler which are not easily accessible, e.g. the bottom part of the boiler sections.

It is important that the compound is applied with the thickness specified.

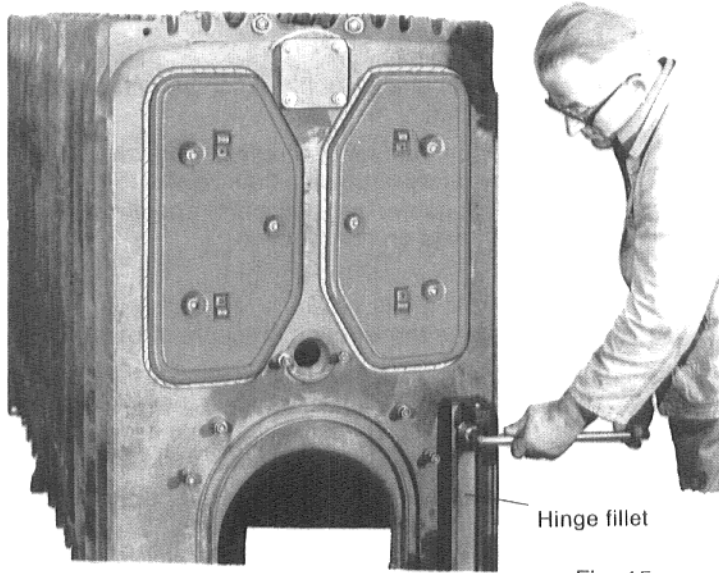


Fig. 15

## 5. Installation and sealing of fittings

The fittings, such as cleaning covers, furnace door, blank plate and smoke hood, can be sealed and mounted during the drying period (30 mins).

Make sure that the rope is only slightly turned when positioning it in sealing grooves (Fig. 16).

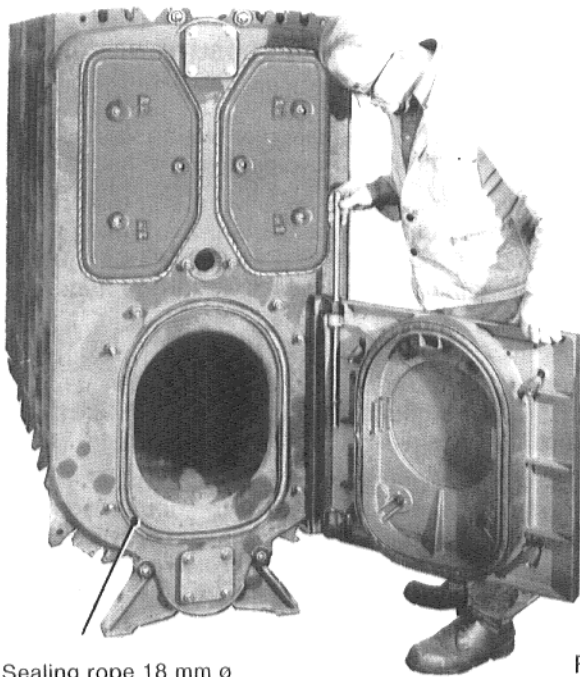


Fig. 16

### Front section:

Place the **hinge fillet** for the furnace door above the studs and screw tight (Fig. 15).

Position **furnace door** with sealing rope 18 mm Ø on the hinge fillet.

Insert **hinge pin** halfway from above. Fit split pin and washer. Secure split pin (see also Fig. 16). Push hinge pin fully home.

Cleaning covers of front and rear sections have already been installed by the manufacturer (see Figs. 17, 19).

Only a well sealed boiler guarantees a perfect functioning and a maximum exploitation of the boiler efficiency.

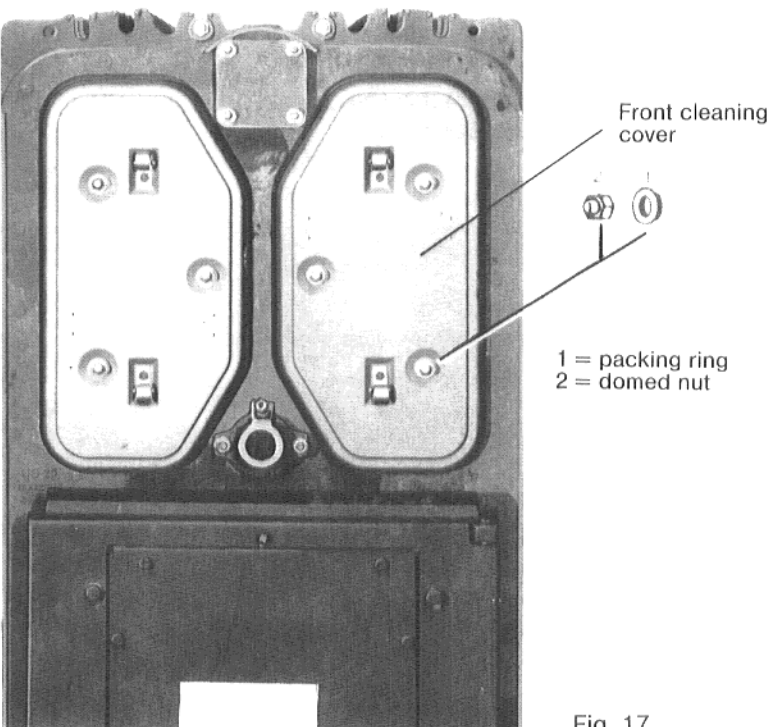


Fig. 17

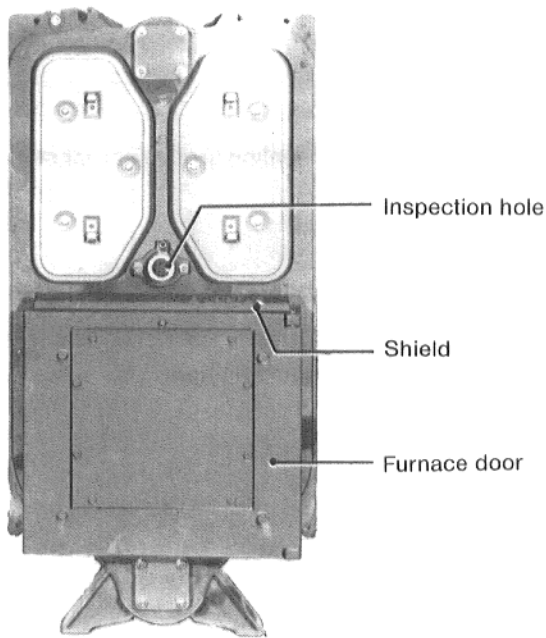


Fig. 18

Secure **furnace door** with 4 lock nuts on the studs on the front section.

Place the three refractory bricks M 1/1-20 (supplied with the boiler) on the furnace floor at the front to allow burn off of oil spill from burner shutdown. They should be positioned lengthwise next to one another in the centre of the combustion chamber so that they are adjacent to the front section.

Position **shield** (above furnace door) and screw tight.

Fit complete **inspection hole** (with washer) with stud bolts on the front section. Position hole cover so that the ventilation connection points upwards (Figs. 17 and 18).

Insert sealing rope 14 mm Ø for the blank plate on the **rear section**.

Place **rear wall refractory brick**.

Fit **flow fitting** with washer (Fig. 19).

Fit **return fitting** with washer (boilers with 10-16 sections with feed pipe) (Fig. 18).

### Assembly of feed pipe

Attach stay bars to return line fitting.

Push feed pipe onto stay bars, whereby care should be taken, that the short part (pipe end up to the first bore 70 mm) points towards the fitting.

Secure feed pipe using washers and nuts.

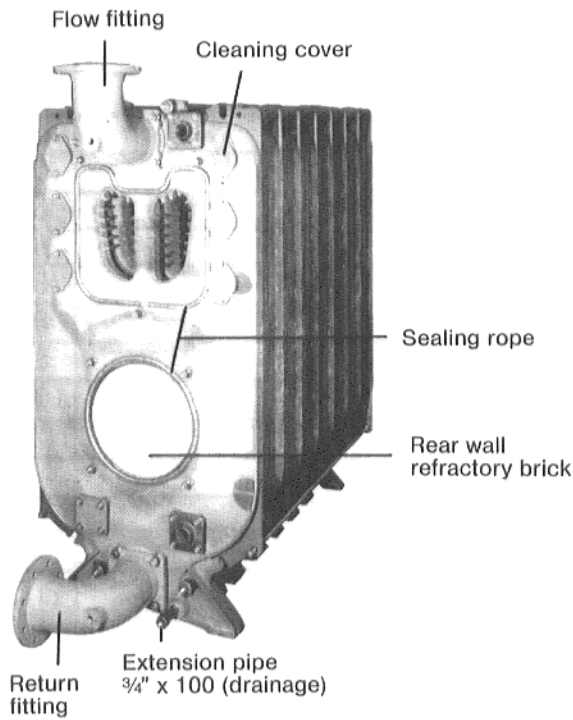


Fig. 19

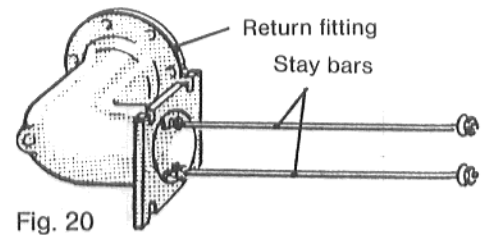
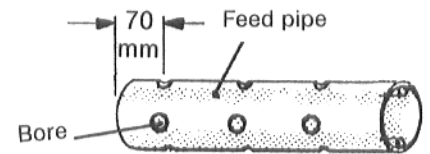


Fig. 20

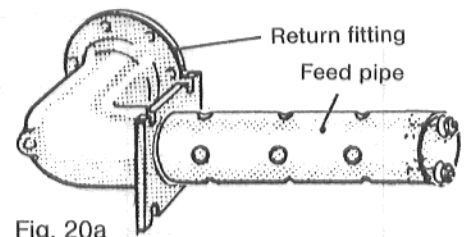
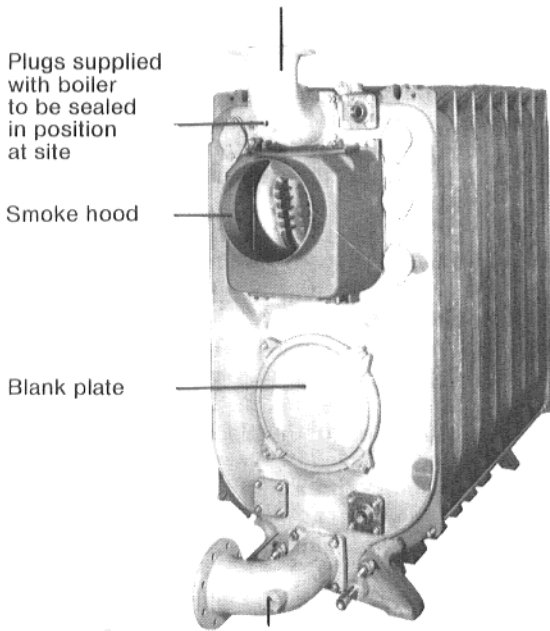


Fig. 20a



Place sealing rope 14 mm Ø in sealing groove or rear section.

Fix the **smoke hood** on stud bolts and screw tight (see Fig. 21).

Lay flue pipe ascending if possible.


Screw **blank plate** (with sealing rope) tight.

Plugs supplied with boiler to be sealed in position at site.

Fig. 21

Mounting brackets per no. of sections no. of sections.

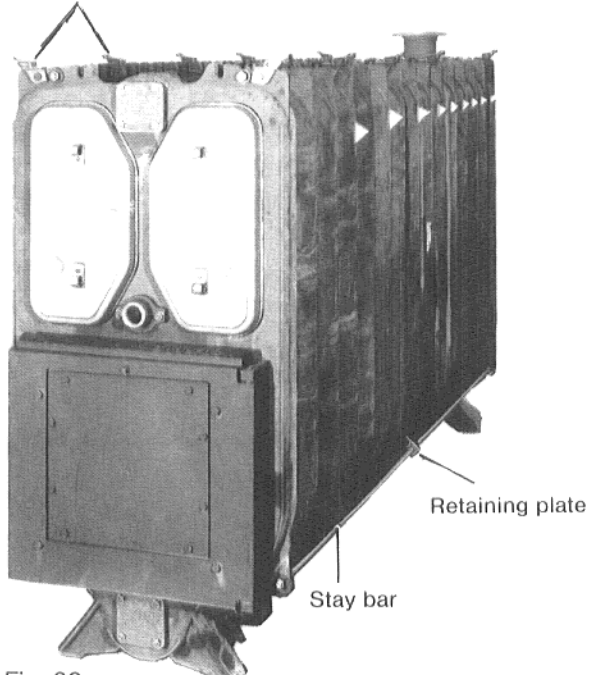
Distribution of the support brackets for the boiler jacket

-  = Support bracket
- V = Front section
- H = Rear section

	V						H										
8	█						█										6
9	█						█										6
10	█						█										8
11	█						█										8
12	█						█										8
13	█						█										8
14	█						█										8
15	█						█										10
16	█						█										10
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Flue fitting

Brackets



**Section arrangement**

Fit and tighten brackets onto lugs at end sections and align with straight edge and spirit level across and over the length of the boiler.

Fit and loosely tighten the additional brackets as per table. Hexagonal head screw M 12 x 40 with nut and washer (see also Fig. 22).

Push support onto stay bar of boiler jacket.

Push the stay bar through the bores of the lugs at the end sections and secure with nut and lock-nut on the front section. The stay bar is not secured at the rear section. Secure support with screw M 8 to intermediate section (Fig. 22).

Place insulating mat on the boiler with the coated side facing up (see Figs. 31, 32, 35).

Fig. 22

## 6. Assembly of boiler jacket

Assembly sequence.

Assemble front, rear and intermediate frame parts (1-4).

Right and left front side wall panels (5).

Right and left intermediate side wall panels (6).

Right and left rear side wall panels (7).

Lower front support (8).

Front cleaning flap (9).

Rear wall panel (10).

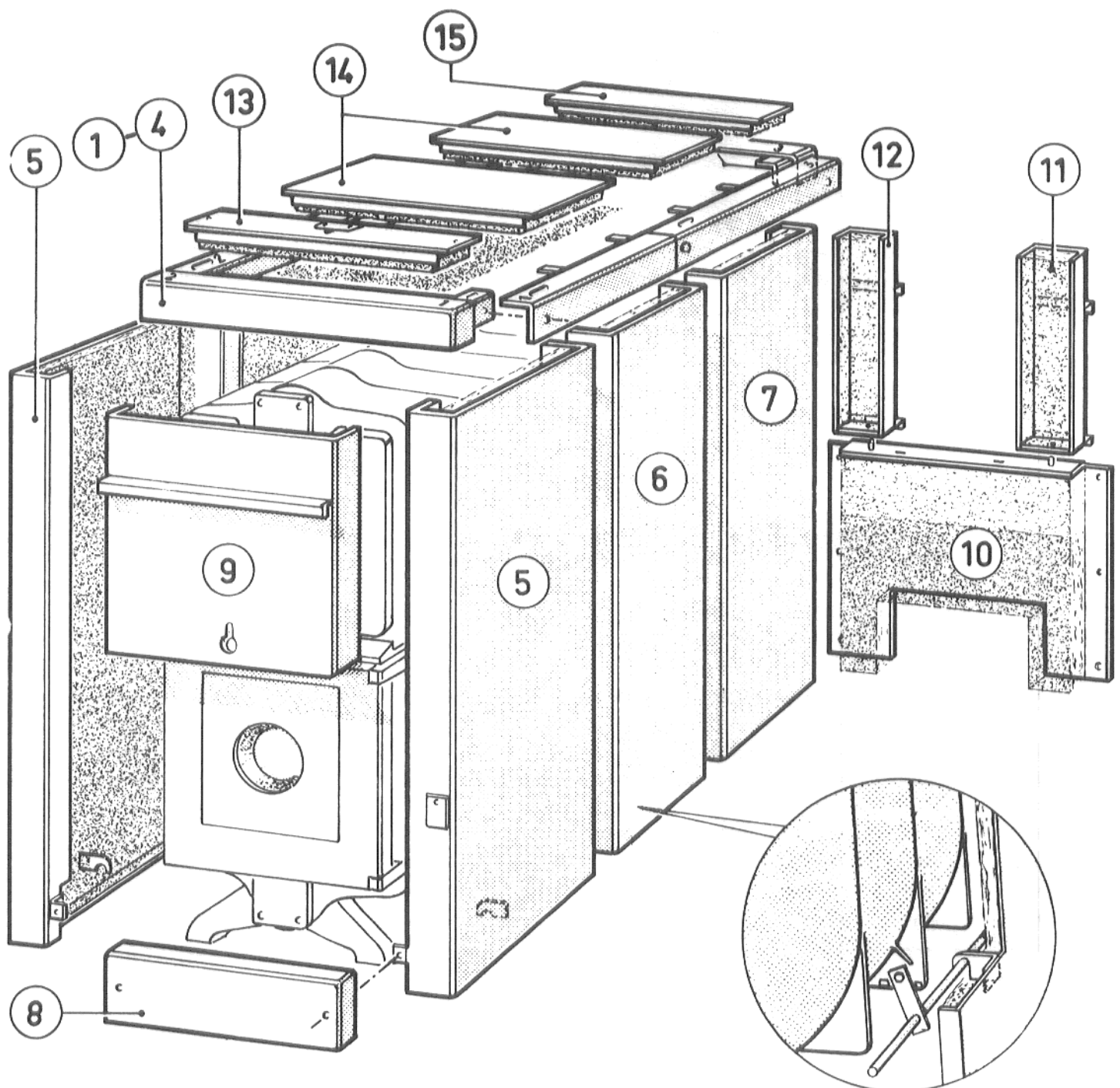
Right hand cleaning flap (11).

Left hand cleaning flap (12).

Front hood panel (13).

Intermediate hood panel (14).

Rear hood panel (15).



Cut-out

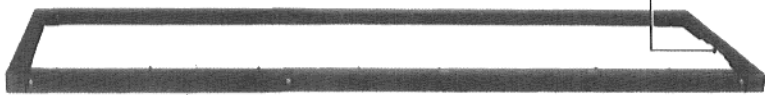
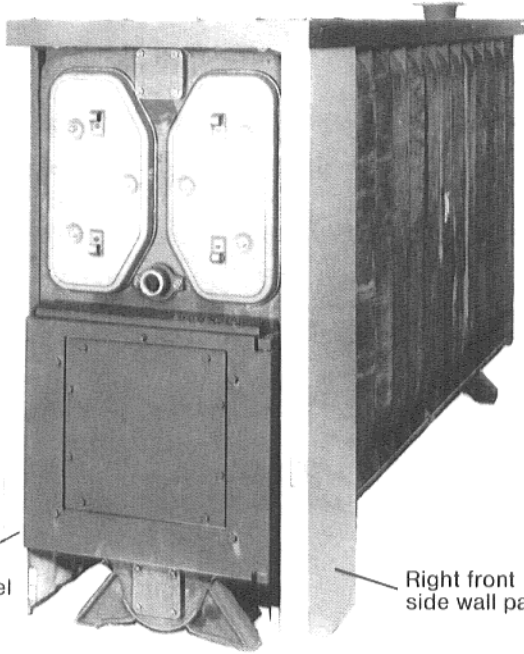


Fig. 23



Assemble the boiler jacket frame in front of the boiler and place on aligned support brackets (cut-out at the rear of the frame see Fig. 23).

Adapt the height of the intermediate supports and lock in position.

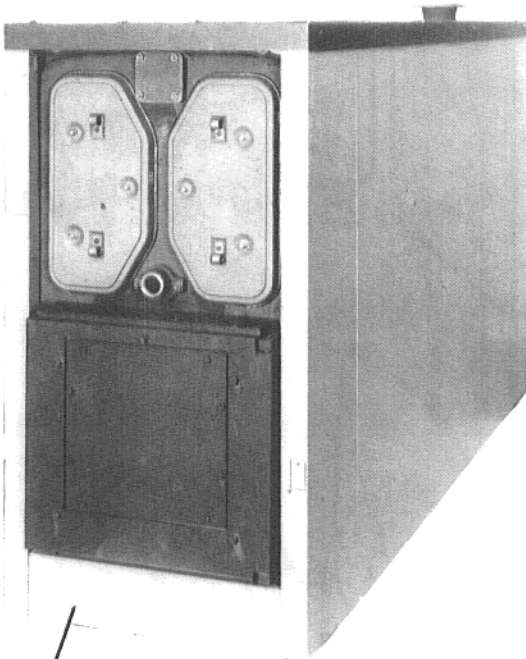
Screw the **frame** loosely to all brackets (hexagon headed set screws).

Slide the **right and left front side panels** between the frame and the spot welded clips at an angle from underneath. Supporting brackets on bottom of panels to be hooked over lower tie rods. Push the frame home towards the rear and screw tight. Position left and right-hand side panels.

Left front side wall panel

Right front side wall panel

Fig. 24



Position **lower front support** and secure with screws (chromium-plated lens head screws M 5).

Lower front support

Fig. 25

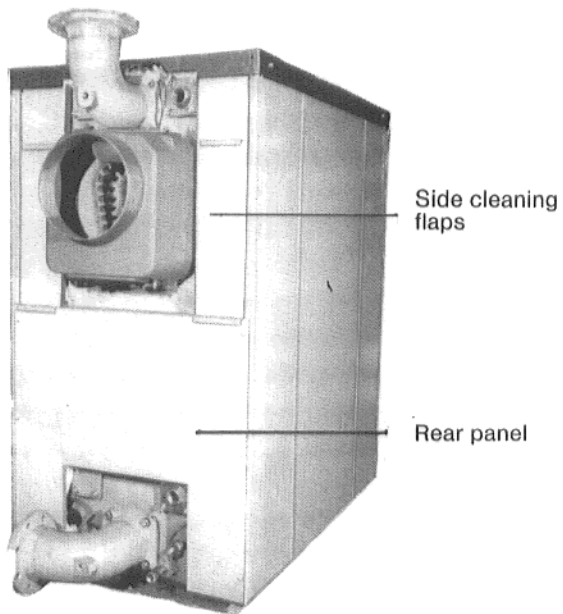


Fig. 26

Position and screw tight **rear panel**.  
 Insert **side cleaning flaps** on the rear panel.



Fig. 27

Slide the **front cleaning flap** under the frame at the top and position behind the shield at the bottom (see Fig. 27).  
 Position **top panel**.  
 Position **front panel** on the frame and secure with screws.  
 Position then intermediate and rear top panels.

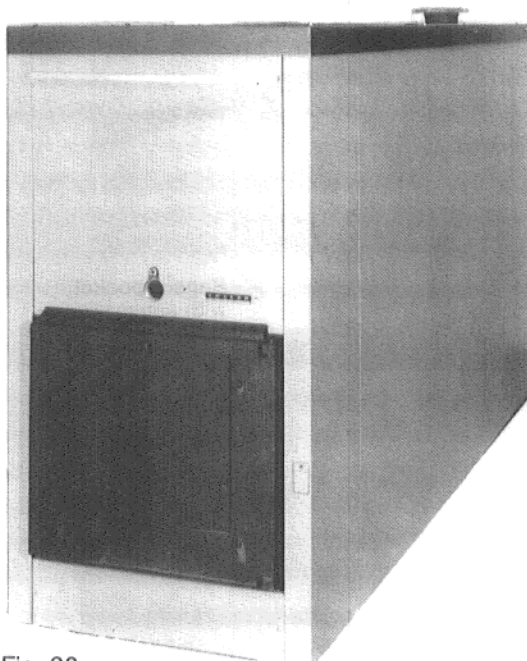


Fig. 28

Boiler with completely assembled doors and frames as well as jacket.

## 7. Assembly of control module

Remove **front cleaning flap**.

Remove top sheet panels (except first panel from the front).

In order to feed in the burner cable unscrew **covering plate** at front panel and at front top sheet panel. Pull in burner cable into the cable conduit in the right side wall panel (Fig. 29).

Pull the **burner cable** upwards (wind it around a wire).

Remove top of control module.

Position **control module** onto the boiler.

Feed **burner cable** into control module.

Unroll **capillary tubes** (with temperature sensor) and pass under control module.

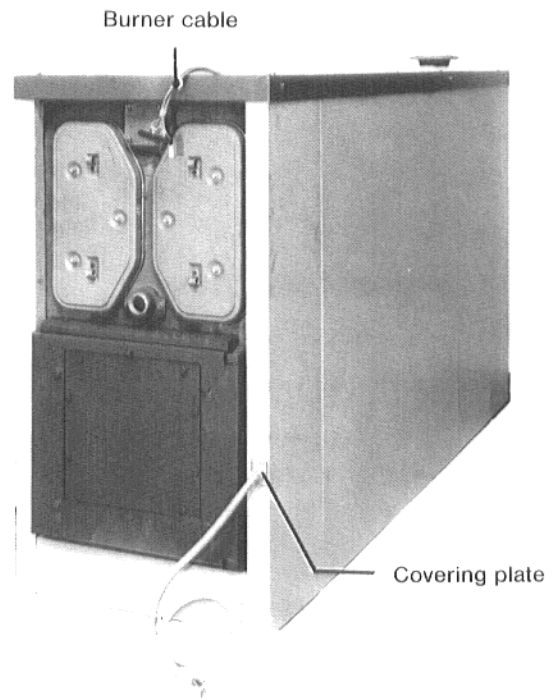


Fig. 29

The capillary tubes should be located in the cut-out of the front sheet panel.

Screw down **covering plate** for capillary tubes to front top sheet panel (Fig. 30).

Plug in **connections** as marked. Screw down fastening screws into bush section of plug strip.

Pay attention to correct positioning of measuring points.

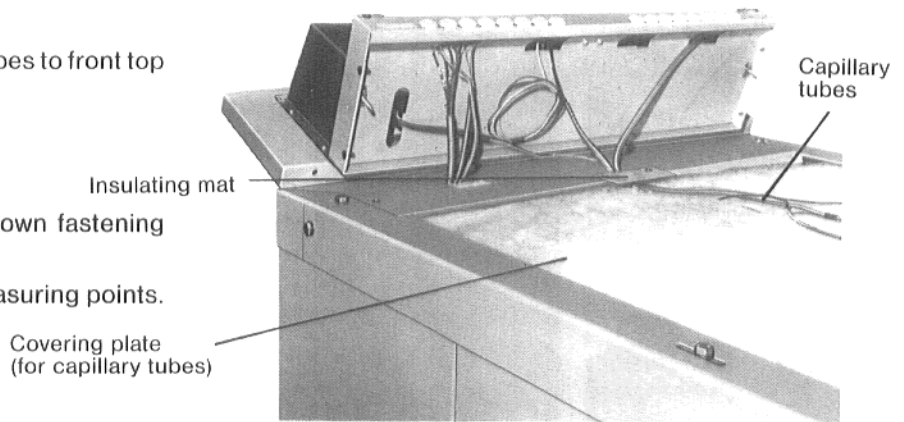


Fig. 30

Place **control module** onto frame and screw to front top sheet panel.

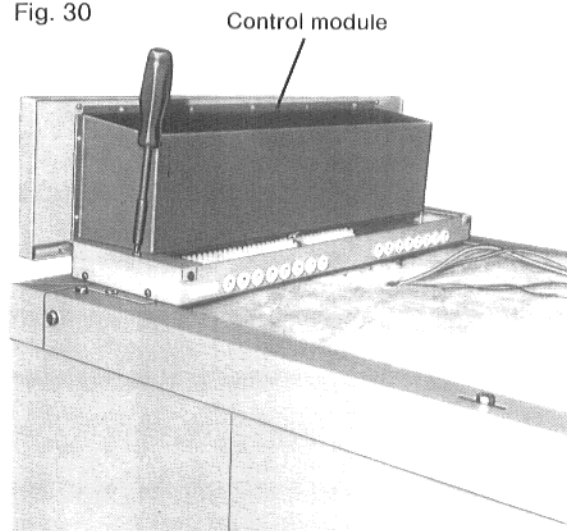


Fig. 31

If the **sensor pockets** (packed together with control module) have not yet been sealed, seal now into rear section (see sketch and Fig. 32).

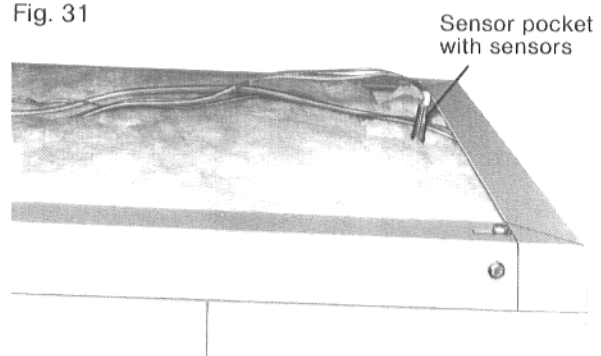


Fig. 32

Lay capillary tubes with temperature sensors (boiler water thermostat(s), thermometer, combined control/limit thermostat) onto insulating mat and pass to sensor pockets.

Insert the **combined control/limit thermostat** marked with coloured tag into the 1/2" measuring point. Therefore remove protective cover from the round sensor of the combined control/limit thermostat (no longer required).

The **blank piece** supplied (packed with the 1/2" sensor pocket) must be installed together with the quadrant sensors of boiler water thermostat(s) and thermometer (see Figs. 32 and 33).

Secure sensor by means of fastening screw against slipping out.

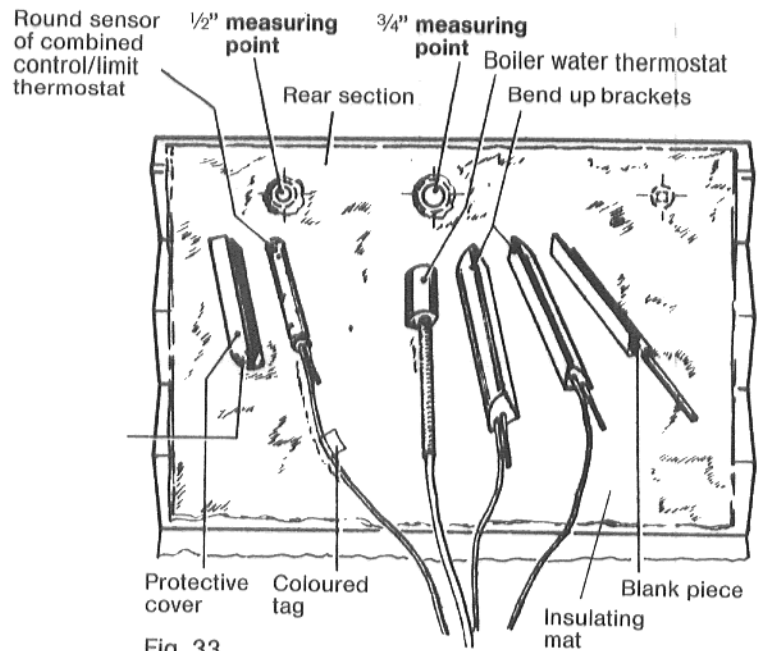


Fig. 33

Put back **top of control module** and screw down from the top.

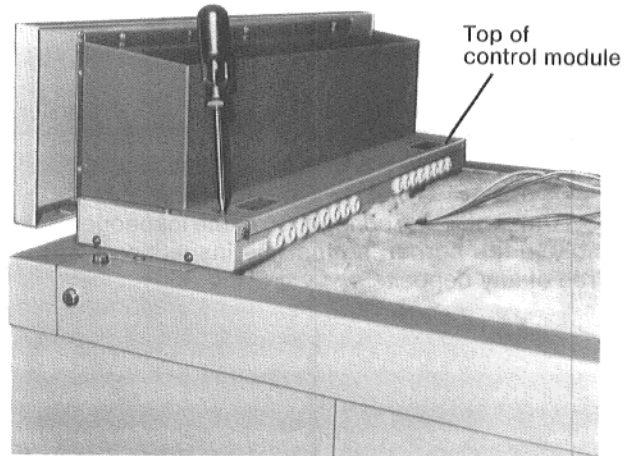


Fig. 34

Position **top sheet panels**, starting at the front and working backwards.

Completely assembled boiler (without burner) with control module.

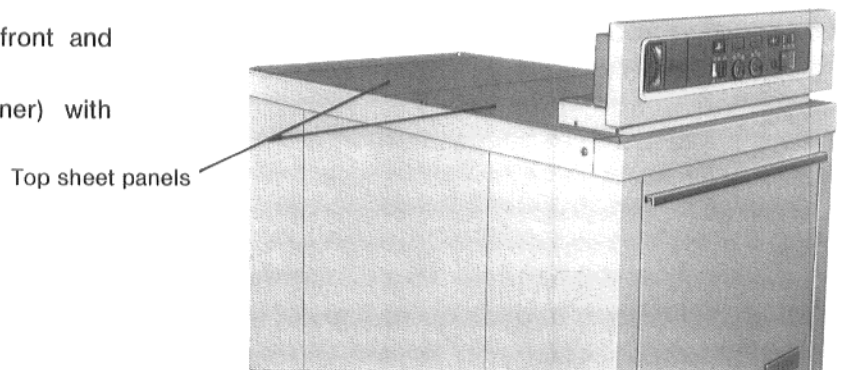


Fig. 35

## 8. Assembly of burner

If the diameter of the flame tube bore is specified in the order, the steel insertion plate is drilled in the factory. If the burner bore has not been drilled, cut out the burner bore at site (torch-cutting).

Also drill fastening bores for the burner.

Position the steel plate in the furnace door or furnace door front structure and secure with screws (seal with sealing rope).

Cut out insulating mat and position it.

Wrap corrugated cardboard or the like around the flame tube and secure.

Assemble burner.

The space between the flame tube and the furnace door structure not already filled in the factory (depends on flame tube diameter), or the furnace door, must now be rammed with castable refractory (IM 500) **on site**. See Figs. 36 and 37.

(A sufficient quantity of IM 500 is supplied with the boiler. Pay attention to the instructions).

Connect the ventilating connection of the inspection hole assembly to the burner, so that the inspection glass is kept free of any deposits.

\*) Rammed in the factory!

IM-500 is supplied by the manufacturer!

Furnace door with front structure  
(only boilers with 8 and 9 sections).

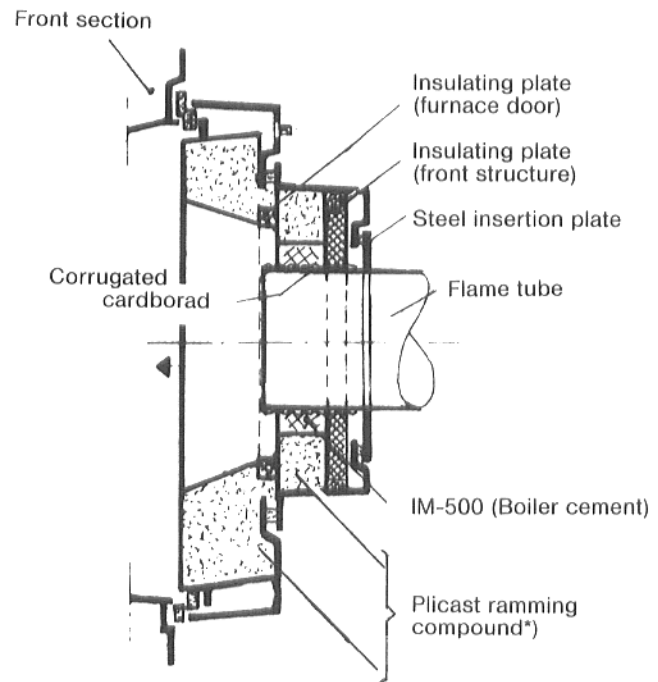


Fig. 36

Furnace door  
(from 10 to 16 sections)

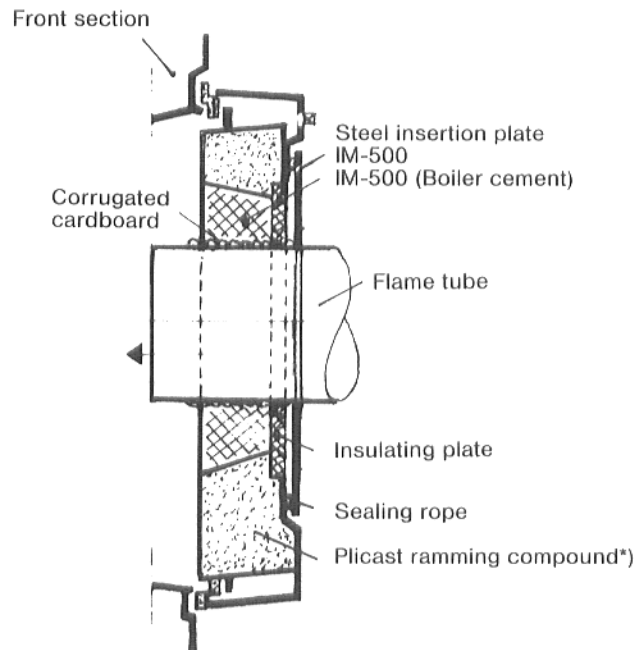


Fig. 37