Appendix F4

Technical information

Remeha P200

Remeha P200

- Pressurized boiler
- Heat output:

  59 - 256 kW

remeha
Clean Heat

CONTENTS

PREFACE

These technical instructions contain useful and important information for the proper operation and maintenance of the central heating boiler, model Remeha P 200.
Further it contains important directions to prevent accidents and serious damage before putting it into service and during operation of the boiler, to allow as far as possible safe trouble free operation.
Read these instructions carefully before putting the boiler into service, familiarize yourself with its operation and control and strictly observe the directions given.

If you have any questions, or if you want more information about specific items relating to this boiler, please do not hesitate to contact us.
The data published in these technical instructions is based on the most recent information and is given subject to later revisions.
We reserve the right to modify the construction and/or design of our products at any moment, without obligation to update earlier supplies accordingly.

1. DESCRIPTION OF THE UNIT

1.1 General

High efficiency pressurized boiler, suitable for use with natural gas and light oil, by means of a pressure jet burner. Also available with a condensing unit (ECO) (for natural gas only).
Up to 141 kW the Remeha P 200 can be delivered assembled (except for casing and instrument panel).
The boiler meets the requirements of the CE regulations in the following directives:

- Gas appliance directive no. 90/396/EEC
- Electrical low voltage directive no. 73/23/EEC
- E.M.C. directive no. 89/336/EEC
- Efficiency directive no. 92/42/EEC.

Classification type for evacuation of the combustion products: B23.

1.2 Burners

In principle all pressure jet burners are suitable, subject to prior adjustment to the boiler capacity and boiler construction. The individual boiler satisfies inspection requirement for central heating boilers.

2. CONSTRUCTION DATA

2.1 General
The boiler block consists of cast iron sections which are assembled by means of tapered nipples. The boiler is a three pass design. The boiler block is insulated with a 80 mm thick layer of glass wool.

2.2 Sections
The sections are made of pearlitic cast iron.
Weights and measures of the sections:
Front section: 59 kg H x W = 630 x 540 mm
Intermediate section: 58 kg H x W = 630 x 540 mm
Rear section: 61 kg H x W = 630 x 540 mm

2.3 Casing
Steel casing, finished with a high-quality insulation. The front door is suitable for left or right opening as required.

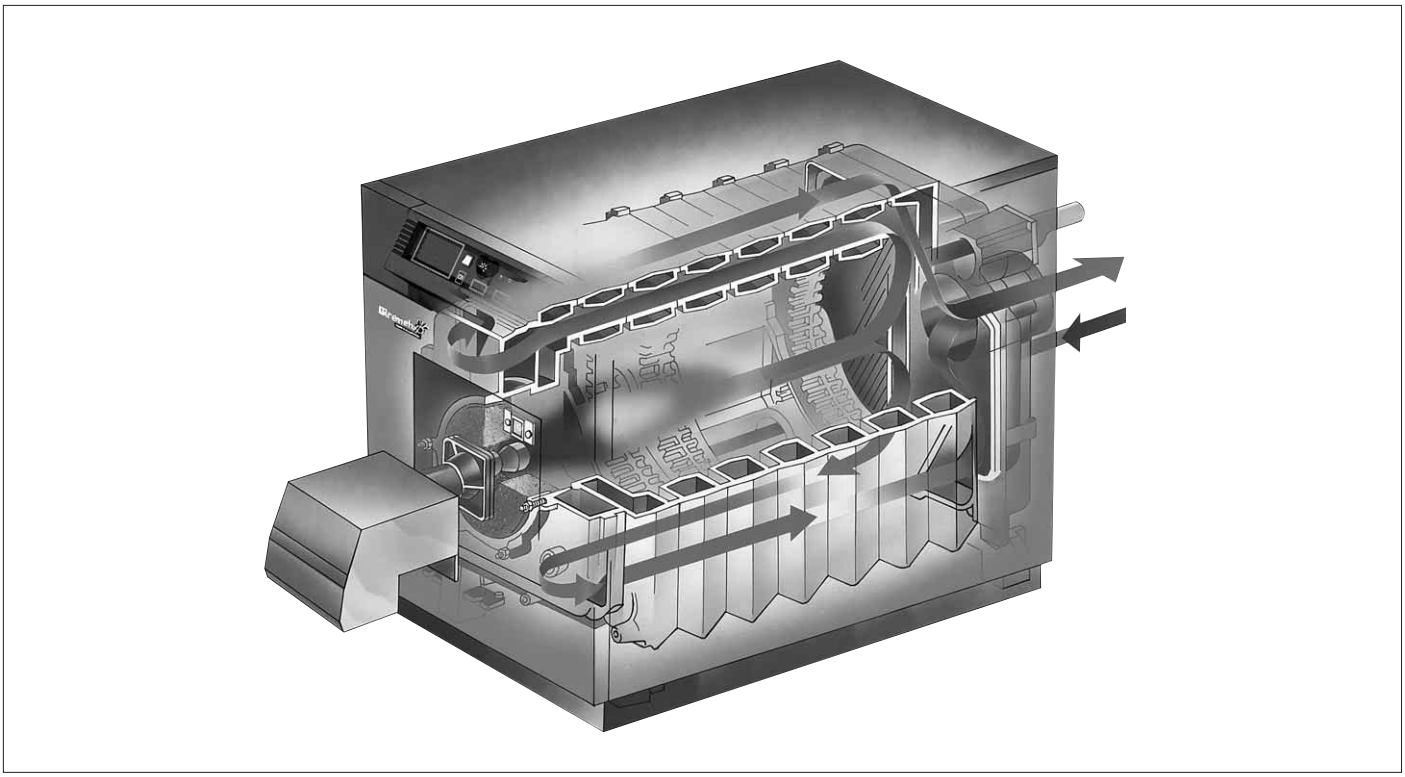
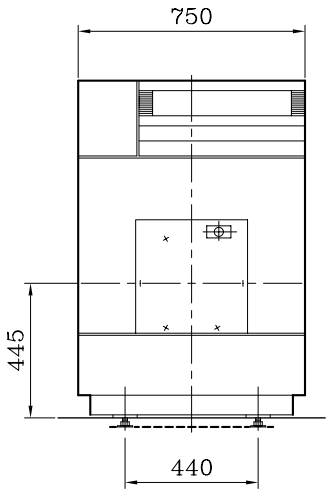
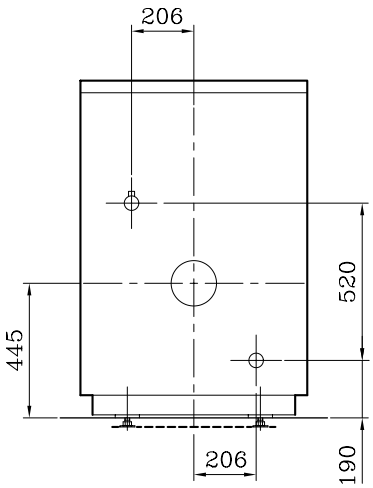


Fig. 01 Remeha P 200

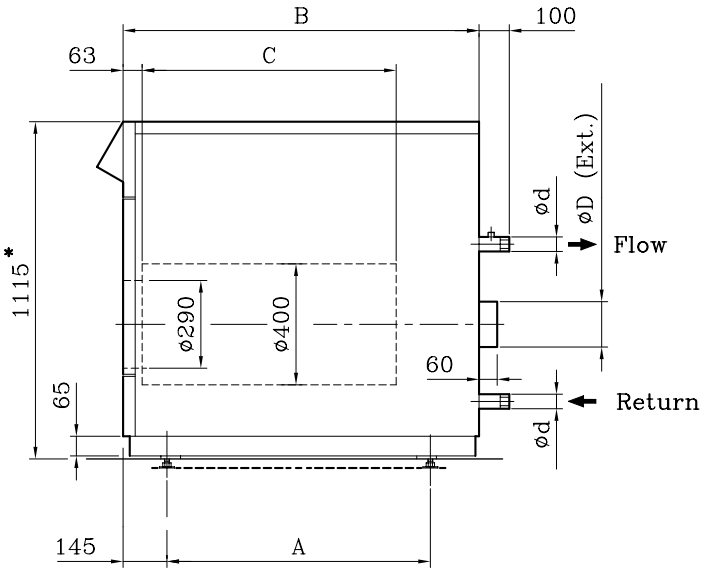
3. TECHNICAL DATA AND DIMENSIONS



Front view



Rear view



Side view

** If the boiler is delivered with adjustable boiler feet the height of the boiler is 1145 mm*

Fig. 02 Dimensions

No. of sections	Output	Nominal input		Combustion chamber resistance[1])	Combustion gas side content	Water resistance		Water content	Weight (dry) approx.	Flue gas mass rate	Sizes				
		NCV	GCV			Δt = 20°C	Δt = 10°C				A	B	C	ØD	Ød
	kW	kW	kW	mbar	m³	mbar	mbar	litres	kg	kg/h	mm	mm	mm	mm	mm
4	34 - 59	66	73	0.1	0.08	2	9	24	365	103	492	791	450	150	1 1/2"
5	40 - 93	103	114	0.3	0.11	5	22	29	425	161	618	917	575	150	1 1/2"
6	46 - 117	129	143	0.6	0.13	8	34	34	485	201	745	1044	700	150	1 1/2"
7	52 - 141	155	172	1.0	0.16	12	48	39	545	242	871	1170	825	150	1 1/2"
8	58 - 165	181	201	1.2	0.18	17	67	44	605	282	998	1297	950	200	2"
9	65 - 184	202	224	1.6	0.21	21	84	49	665	315	1124	1423	1075	200	2"
10	71 - 206	225	250	1.4	0.23	26	103	54	725	351	1250	1549	1200	200	2"
11	77 - 229	250	278	1.8	0.26	32	127	59	775	390	1377	1676	1325	200	2"
12	83 - 256	278	309	2.1	0.28	39	158	64	835	434	1503	1802	1450	200	2"

[1]) Determined with 20 % excess air.

4. OUTPUT DATA

4.1 Boiler efficiency

Up to 91.7 % at NCV (82.6 % at GCV) at full load and up to 93.2 % at NCV (84.0 % at GCV), at part load.
Average water temperature 70°C (80/60°C).

4.2 Combustion efficiency

Up to 93.0 % at NCV (83.8 % at GCV) at full load and up to 95.5 % at NCV (86.0 % at GCV) at part load.

5. APPLICATION DATA

5.1 L.P.H.W. version

5.1.1 Water temperature
Maximum water temperature is 110°C.
The minimum acceptable return water temperature is, for gas fired boilers 45°C and for oil fired boilers 40°C, at a flow rate corresponding to a Δt of 20°C at nominal heat output.

5.1.2 Water pressure
Maximum pressure 6 bar.
The boiler is suitable for open and sealed systems up to a maximum pressure of 6 bar and a minimum pressure of 0.8 bar. The boiler is suitable for installation in basement or rooftop boiler houses.

5.1.3 Flow rate
The minimum flow rate through the boiler is obtained from the following formula:

$$\frac{\text{nominal heat output (kW)}}{70} = \text{m}^3/\text{h}$$

This minimum flow must be maintained for 5 minutes after the burner stops firing to avoid high temperature shut - down due to residual heat gain.
Due to the design and manufacture of the boiler no specific minimum water flow requirement exists other than for over-temperature protection.

5.1.4 Water treatment
Under normal conditions water treatment is not required (see our leaflet on water quality recommendations).

5.2 Economisers
ECO's can be delivered upon request (for natural gas only).

5.3 Flue gas discharge
For the discharge of the flue gases, chimney draught is not required.
Tests have shown that very good combustion results are obtained with zero draught at the boiler outlet.

5.4 Noise production
The noise level taken at a distance of 1 m around the boiler is approximatively 70 to 85 dBA. The noise level at the chimney outlet will, depending on load, type of burner and chimney situation, vary from 70 to 90 dBA, taken at a distance of 1 m from the outlet. If this noise production give rise to problems in the immediate vicinity, then noise reducing or absorbing measures should be taken.

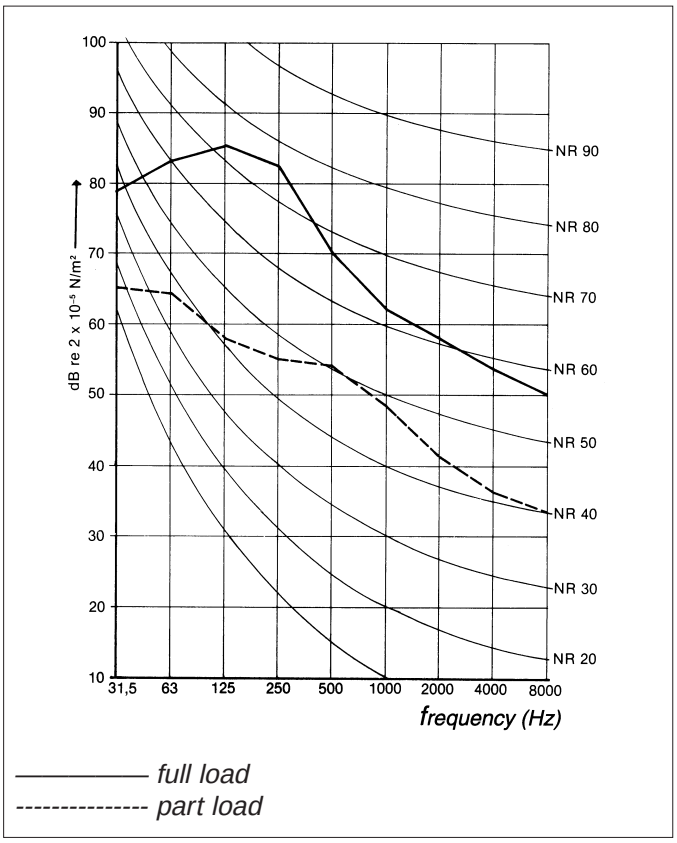


Fig. 03 Noise level readings without burner silencer

The values that have been taken are averages obtained from various measurements carried out at a distance of approximatively 1 m around the boiler and at a height of approximatively 1 m.

6. INSTALLATION REQUIREMENTS

6.1 Installation recommendations in the boiler house

The necessary minimum installation space of the boiler can be seen from figure 04.

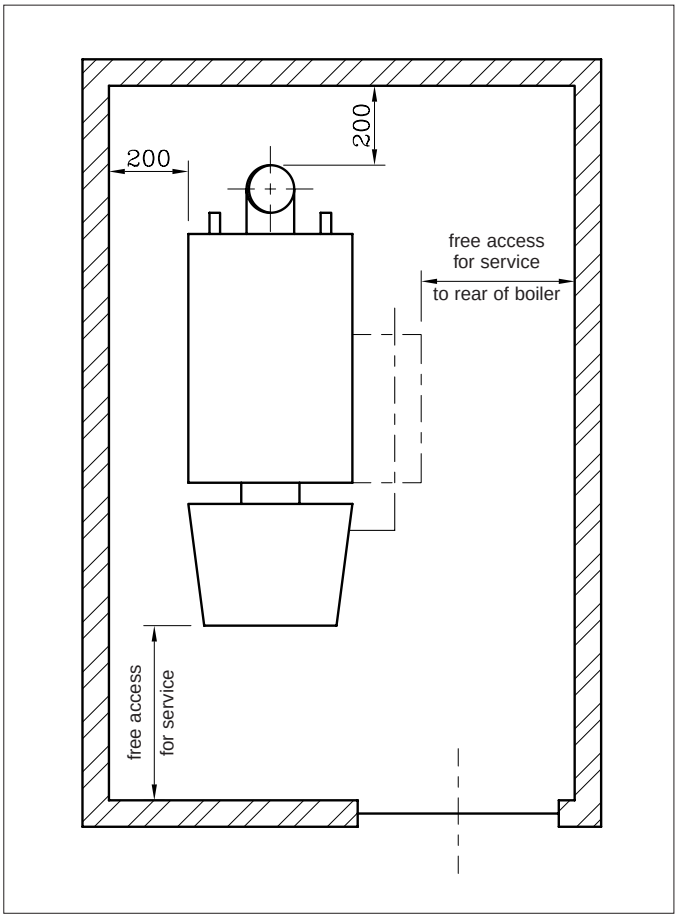


Fig. 04 Installation recommendations in the boiler house

7. ASSEMBLY GUIDELINES AND INSTALLATION REQUIREMENTS

7.1 General
The Remeha boilers P 200 - 4 to 7 sections can be delivered in individual parts or assembled. The Remeha boilers P 200 - 8 to 12 sections are delivered in individual parts.

7.2 Water connections
The water connections are at the rear of the boiler.
The flow and return connections consist of threaded male connections : 4 - 7 sections $1^1/_2$" BSP
8 - 12 sections 2" BSP
Flange connections in accordance with DIN 2633 can be delivered on request (Ø 70 mm ID).
The top flange at the front of the boiler is provided with 3 x R $^1/_2$" threaded holes for the fitting of the thermostat pockets. The return connection is provided with a R $^3/_4$" threaded hole in which a drain off cock is fitted.

7.3 Delivery in individual parts

7.3.1 General
The sizes of the boiler parts are such that they all can enter the boiler house through a normal entrance.
The casing and equipment parts are delivered in packaged units. If necessary, the boiler can be put into operation without casing. The casing can be added at a later stage without dismantling the water connections.
On request the boiler can be delivered with adjustable boiler feet.

7.3.2 Boiler assembly
Assembly and installation of a boiler delivered in individual parts should only be undertaken by a recognized and approved engineer and in accordance with the assembly manual. Local regulations laid down by the relevant authorites must be adhered to.

7.4 Delivery assembled (4 to 7 sections only)
The boiler is delivered completely assembled in a crate and on a pallet. Just the casings and the instrument panel are delivered seperate in package units in the crate. The boiler is delivered with adjustable boiler feet *(figure 05)*. By unscrewing the boiler feet, the boiler lifts itself up from the pallet. The pallet can now be dismantled and taken away *(figure 06)*. Now the boiler level can be adjusted horizontally and in the right height *(figure 07)*.
After the installation of the boiler, the casings and the instrument panel can be fitted *(figure 08)*.
If necessary, the boiler can be put into operation without casing. The casing can be added at a later stage without disconnecting the water connections.

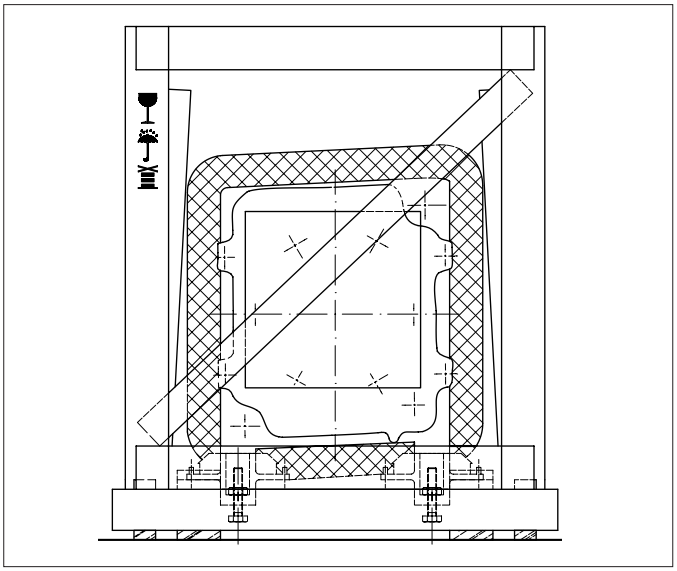


Fig. 05 The boiler completely assembled in a crate and on a pallet.

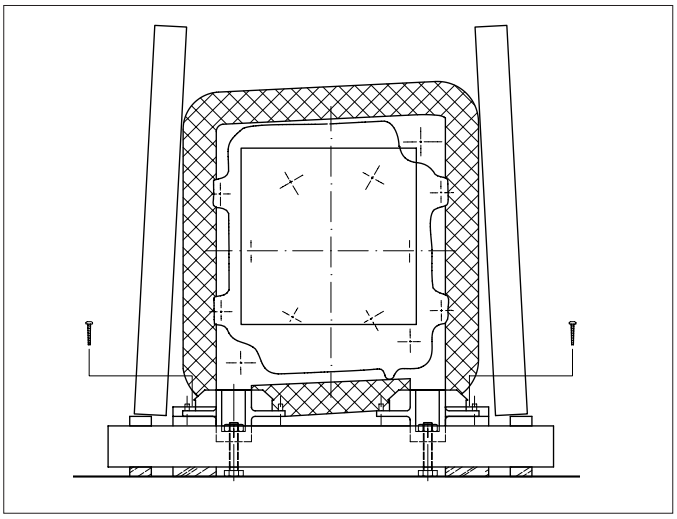


Fig. 06 The pallet dismantled and taken away

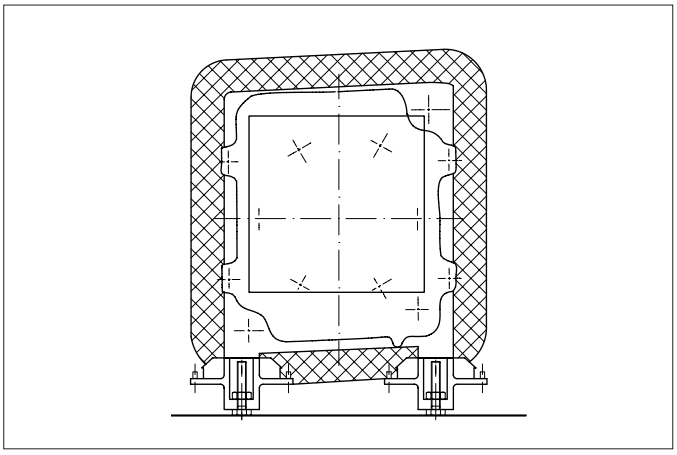


Fig. 07 The boiler adjusted horizontal and at the right height

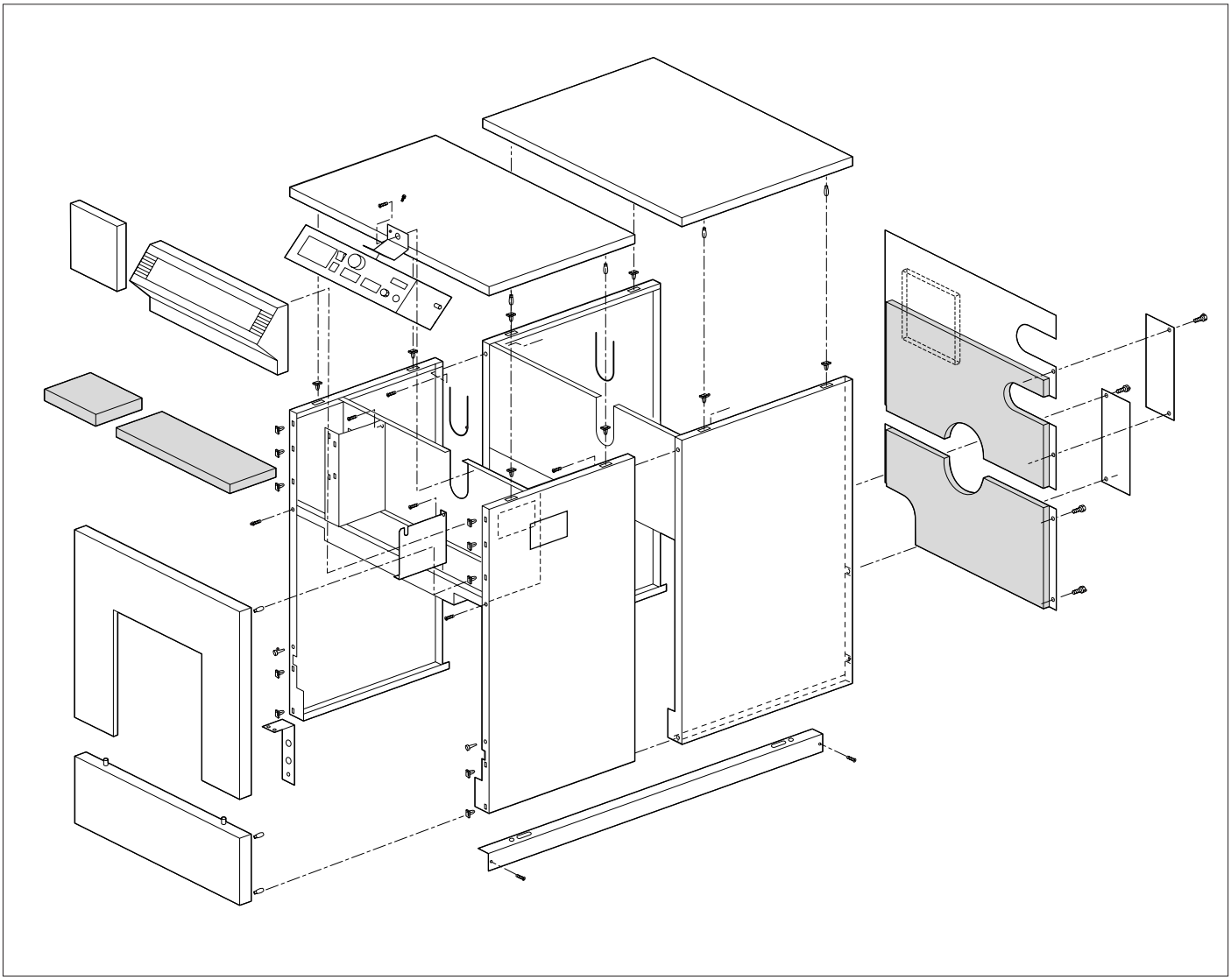


Fig. 08 Mounting casings and the instrument panel

8. INSTRUMENT PANELS

8.1 Equipment contents

The panels contain all the necessary control and measuring instruments required to control the boiler.
The connections have to be made on a terminal strip.
The capillaries and sensor wires, which come from the control panel, are placed in the instrument pockets that are fitted at the front of the boiler.
See par. 8.2 for an instrument panel High/Low with hours run meters. Several extra options can be built into the panels.
Ask our technical departement.

8.2 Instrument panel High/Low with hours run meters

8.2.1 Lay out instrument panel High/Low with hours run meters

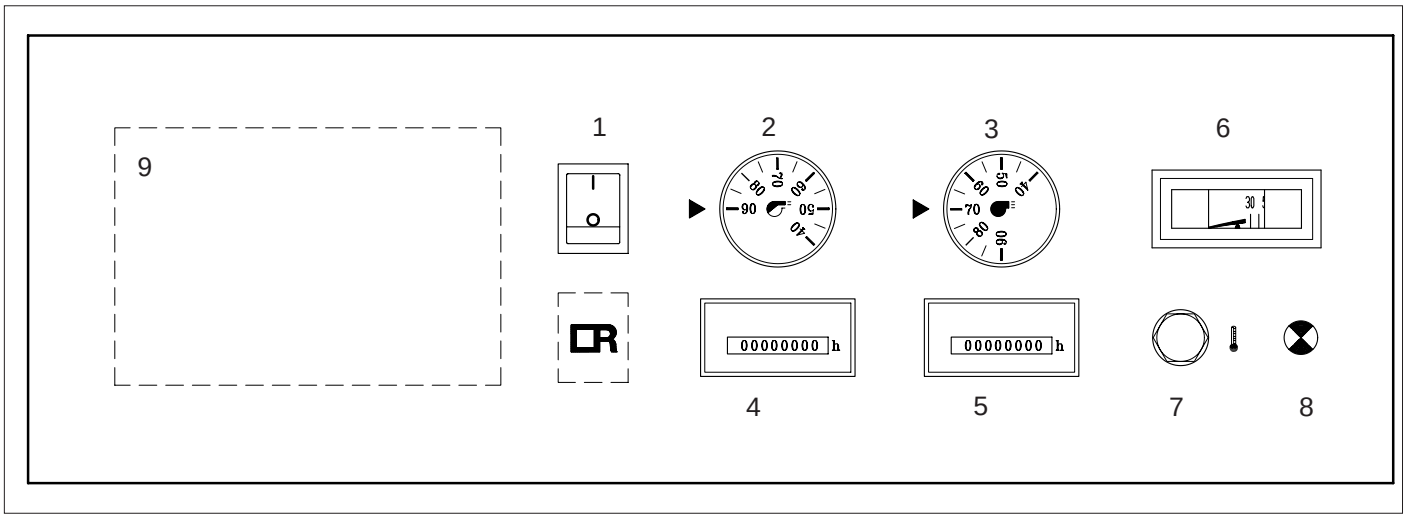


Fig. 09 Layout of the instrument panel High/Low with hours run meters

1. Operating switch (On/Off)
2. Control thermostat
   Setting between 35°C - 95°C
3. High/Low thermostat
   Setting between 35°C - 95°C
4. Hours run meter total running hours
5. Hours run meter full load running hours
6. Analoque thermometer water temperature
7. High limit thermostat 110°C (lock out)
8. Central warming light
9. Option for ***rematic***® weather compensator

8.2.2 Wiring diagram instrument panel High/Low with hours run meters

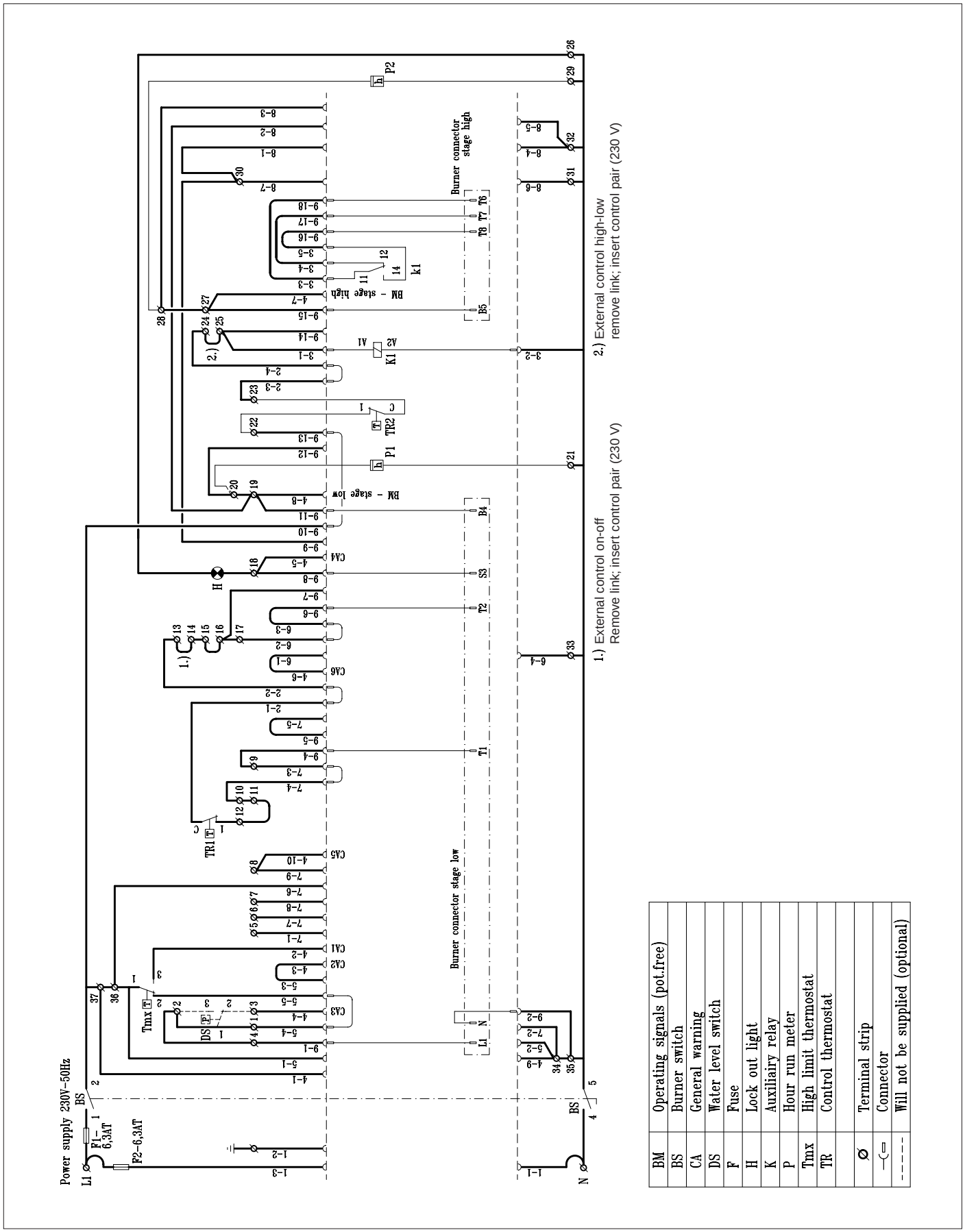


Fig. 10 Wiring diagram instrument panel High/Low with hours run meters

9. COMMISSIONING

Note:
Commissioning to only be carried out by a qualified engineer with the relevant training and certification i.e. Acops-Corgi and a commissioning data sheet completed on site for issue to owner.

9.1 Pressurized boiler with gas burner

9.1.1 Commissioning procedure
If the boiler is to be put into operation again following a period of non-use, then the following procedure must be carried out :
a. Open the main gas cock.
b. Switch the weather-compensator (if fitted) over to manual operation.
c. Turn the thermostats to their highest setting.
d. Switch on the circulation pump.
e. Switch on the main switch.
f. Switch on the operation switch in the instrument panel.
g. Consult burner manufacturers commissioning details.

Warning
If the instrument panel is fitted with a weather compensator, set the programm switch to 'manual' position. The following will now take place: the gas burner fan will start running so that during the purging time the combustion chamber will be ventilated with the air damper fully opened. The air damper will then go into start position. Ignition flame lights up and is checked. Then the control box gives the all clear signal for the burner to switch over to full load.

9.1.2 Putting out of operation
It is sufficient to switch off the operation switch on the instrument panel. It is recommended that in the event of work being carried out on the burner, that the boiler/burner unit is completely electricaly isolated and the main gas lock is shut.

9.2 Pressurized boiler with oil burner

9.2.1 Commissioning procedure
If the boiler is to be put into operation again following a period of non-use, then the following procedure must be carried out :
a. Open the main oil cock.
b. Switch the weather-compensator (if fitted) over to manual operation.
c. Turn the thermostat to their highest setting.
d. Switch on the circulation pump.
e. Switch on the main switch.
f. Switch on the operation switch in the instrument panel.
g. Consult burner manufacturer commissioning details.

Warning
If the instrument panel is fitted with a weather compensator, set the programm switch to 'manual' position. The following will now take place: the oil burner fan will start running so that during the purging time the combustion chamber will be ventilated with the air damper fully opened. The air damper will then go into start position. Ignition flame lights up and is checked. Then the control box gives the all clear signal for the burner to switch over to full load.

9.2.2 Putting out of operation
It is sufficient to switch off the operation switch on the instrument panel. It is recommended that in the event of work being carried out on the burner, the main oil valve is shut.

10. FAULT FINDING

10.1 High Limit thermostat lockout

- Check the water circulation (circulation pump). Reset the High Limit thermostat (Reset button is on the instrument panel under the cover cap of the High Limit thermostat).
- Advise the installer in the event of continued lock outs.

11. MAINTENANCE RECOMMENDATIONS

11.1 General

Depending on the operational conditions, the block and the burner must be checked and cleaned one or more times a year.

11.2 Maintenance instructions

- Cleaning of the boiler (at least once a year for gas and twice a year for oil).
- Put boiler out of operation.
- Open the front door, if necessary after dismantling the burner.
- Remove the retarders (only for the 4 - 9 sections).
- Clean the combustion chamber and flue passes using a suitable brush.
- Clean the removed retarders (4 - 9 sections).
- Remove the rear panel of the boiler and remove the cleaning cover (underneath the smoke box).
- Vacuum clean the boiler and the combustion chamber.
- Renew the front door seals after cleaning the boiler.
- Re-assemble the removed parts and close the front door.
- Re-assemble the burner (if dismantled).
- Check the boiler combustion side for leakage.
- Check the equipment for proper functioning and if necessary re-adjust the control and safety equipment.
- Carry out combustion analysis.
- Check the water connections.

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Clean Heat