

Operating Manual

Infrared Oil Heater

RH 35



Perfection is our aim.



EC – Declaration of Conformity

according to machine directive 2006 / 42 / EEC

Structure of the machine

Portable air heaters (oil fired with and without heat exchanger)

Description:

RH 35

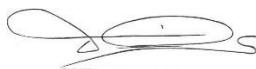
is designed, constructed and manufactured in accordance with the above-mentioned directive, EMV directive 2004/30 EEC, the directive for low tension 2014/35 EEC and the directive 2011/65/EC RoHS.

The following harmonized standards have been used:

- EN 61000-3-2 Harmonics on low-voltage networks
- EN 61000-3-3 Voltage fluctuations and flicker on low-voltage networks
- EN 61000-6-4 Electromagnetic compatibility (EMC)
- EN 61000-6-2 Electromagnetic compatibility (EMC)
- DIN EN ISO Safety of machines
- EN ISO 13857 Safety of machinery - Safety distances
- EN 60335-1-2002 Electrical equipment for industrial machinery
- EN 60335-2-102

Note: The observance of EN 13857 refers only to the protection against accidental contacts of the unit. For the complete fulfillment of EN 13857 the user resp. installer is responsible.

Mönchengladbach,
15.04.2020



Managing director

Place, Date

Signature

Operating Manual

Infrared Oil Heater

RH 35

ATTENTION!

The manufacturer expressly reserves the right to make unannounced technical changes if they serve to improve the performance or the safety standards of the device.

Index

Infrared Oil Heater RH 35

	<u>Page</u>
1. Introduction	1
2. Technical Specifications	3
3. General Information	4 – 6
4. Operating Instructions	7 – 8
5. Specifications	9
6. Assembly Instructions	10 – 11
7. Starting Procedure	12 – 13
8. Misfire resetting	14
9. Switching off the heater / Restart	15
10. Maintenance RH 35	16 – 20
11. Possible Malfunctions and Remedies	21
12. Wiring Diagram RH 35	22
13. Spare Part List RH 35	23 – 26

2. Technical Specifications

Type:	<u>RH 35</u>
Heat capacity:	30 kW 25810 k/cal. 102.400 BTU/h
Fuel:	Heating oil EL / diesel or kersosene
Tank capacity:	53 l
Voltage:	230 V / 50 Hz
Power consumption:	60 W
Rated current:	0,4 A
Control:	Flame control with automatic aftercooling
Fuse:	16 A
Combustion system:	High-Pressure Atomization Burner
Ignition system:	High-Voltage Transformer
Fuel pump pressure:	7 bar
Nozzle:	0,85 G 60° S
Consumption:	2,5 kg/h
Weight:	32 kg
Dimensions: L x 'L x B x H in mm	730 x 710 x 965
Noise level:	69 dB (A)

3. General Information

- Introduction:** This chapter contains general informations about the heater and the operating manual.
- Target group:** The operating manual is meant for technicians who install the heater, do service or exchange defective parts.
- Copyright:** The duplication of the manual in total or in parts of it is allowed only with written permission of Hans Wilms GmbH & Co. KG.
- Reserve:** Hans Wilms GmbH & Co. KG reserves the right to make changes and improvements of the product and the operating manual without prior notice.

Safety Informations

Safety standards

Read this manual carefully before doing any work on the heater and obey the safety stickers which are directly on the machine.

The manufacturer is not liable for damages / injuries of persons or materials which are caused by disregard of these directions.

The machine may be operated by trained people who are qualified for these jobs.

Minors may not use these machines.

The heater may be operated only for the intended purpose.

Before operating read very carefully!

IMPORTANT !

Infrared Oil Heaters RH 35 shall not be placed in the neighbourhood of explosives or easily flammable materials. Also, they shall not be used within a place where much dust can be stirred such as wood dust, etc.

It is also prohibited to set up in rooms with a lot of dust.

Infrared Oil Heaters with an open combustion chamber (without exhaust pipes) can only operated in rooms if:

they are well ventilated and vented and

the proportion of harmful substances in the air we breathe has not reached an unacceptable concentration.

A good natural ventilation is provided if e.g.

the volume in m³ at least 30 times the nominal heat load in kW all in corresponds to devices in operation and through windows and doors natural air exchange is ensured.

or:

there are non-closable openings for supply and exhaust air near the ceiling and floor, the size of which corresponds to at least 0.003 times the nominal heat load in kW of all devices in the room.

An unacceptable concentration of harmful substances in the breathing air is not to be expected as long as the MAK values are not reached and the oxygen content in the air is more than 17% by volume.

Infrared heaters with an open combustion chamber (without exhaust pipes) may only be operated to dry out rooms if at least an air volume sufficient for combustion is supplied.

The permanent stay of people is prohibited in these rooms.



This ban is indicated by signs at the entrances point out.

A natural air supply for the combustion is given if e.g. the volume in m³ corresponds at least to 10 times the nominal heat load in kW of all devices in operation and natural ventilation is ensured by windows and doors.

Radiant heaters are suitable for selective heating of workplaces and for drying surfaces that are illuminated by them.

Such uses are both outdoors and in large rooms, e.g. in halls, allowed.

The heater may be operated only by persons who have been advised in the use of the heater. Please, refer to the operating manual.

Instructed persons are those who have been informed of the tasks assigned to them and of the possible dangers of improper behaviour and, if necessary, have been trained.

Repairs and maintenance on electrical components may be carried out by an electric expert only.

On construction sites the heater may be connected only according to the VDE standard 0100/5.73§55 with a terminal with FI-protection switch.

Infrared heaters must be checked for their safe working condition according to the operating conditions as required, but at least once a year by an expert, and the results of the tests must be recorded in writing and kept until the next test.

4. Operating Instructions

Important!

A possible smoke development at the first operation will disappear after approx. 30 seconds.

Although fire can be put out with switch „OFF“, do not pull power cable off outlets as long as operation indicator lamp is on position on.

Use only light, filtered fuel oil EL / Diesel or petroleum.



Despite very high combustion chamber safety and very good combustion values, there are portions of carbon monoxide in the exhaust gases.

Therefore, good ventilation must be ensured.

If there are signs of poisoning, go to the fresh air immediately.



Electrical safety

- To avoid electric shock - follow the instructions below:
- Check whether the mains voltage is suitable - observe the information on the type plate.
- Always use a grounded socket and a proper extension cable.
- Always disconnect the power supply when the device is not used.
- Make sure that the device does not come into direct contact with moisture.
- Always replace a defective cable immediately.

Danger of serious burns!



Never fill the unit with petrol.

Never refill the tank while heater is in operation or hot.

Never block air-outlet- or air-suction.

Never operate the unit with warm air hose / ducting.

Never touch the heater while it is still hot.

Never transport the heater with full tank.

Never use the heater with separate tank.

Never let children or animals near the heater.

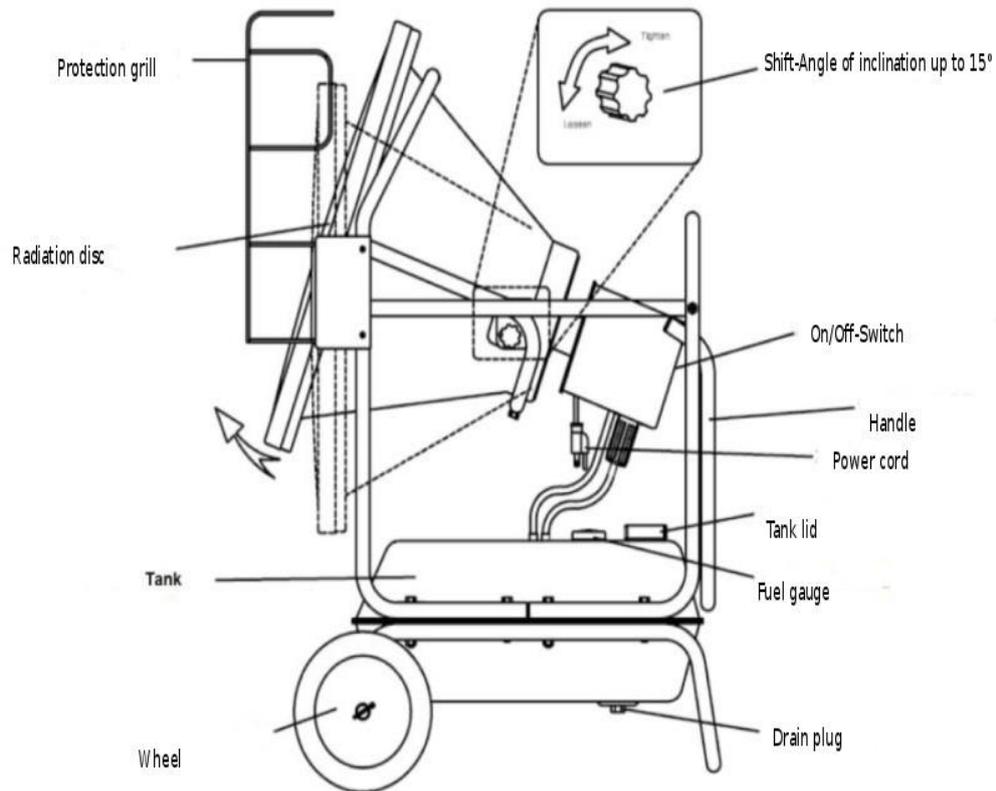
Never get too close to the heater with your clothes.

The heater must always be on a safe stable ground.

Heaters, which are equipped with a thermostat can be started at any time - depending on the thermostat setting - as soon as they are connected with the power supply.

5. Specifications

RH 35



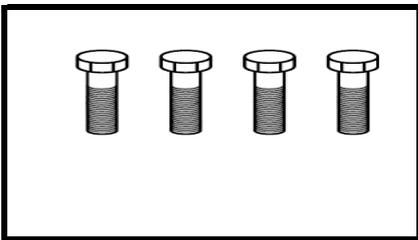
6. Assembly Instructions

RH 35

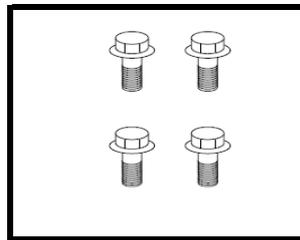
Remove the heater as well as all the packaging material out of the carton.

Remember to take the axle out of the styrofoam packaging.

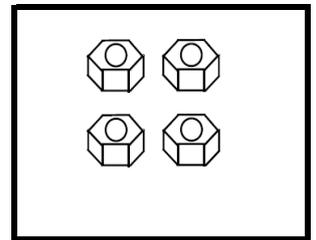
Carton-Contents:



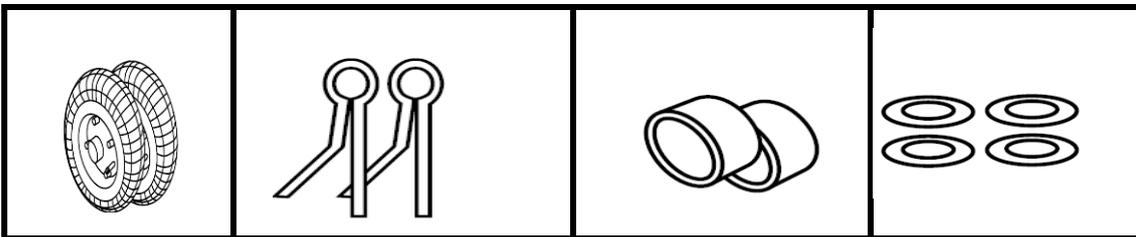
Screws



Screws



Nuts

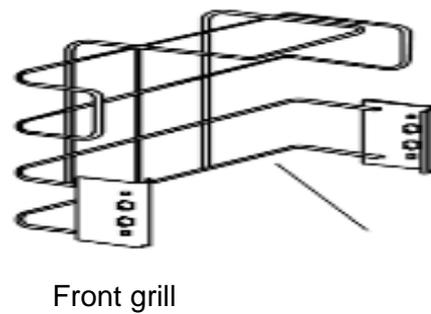
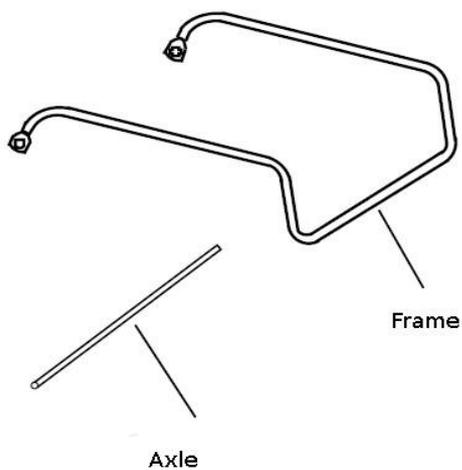


Wheels

Pin

Spacer

Washer



Assembly Instructions

RH 35

1. Push the axle through the frame.
2. Then put first a spacer, a washer, the wheel and another washer on the axle. Secure the wheel with a split pin, picture 5.

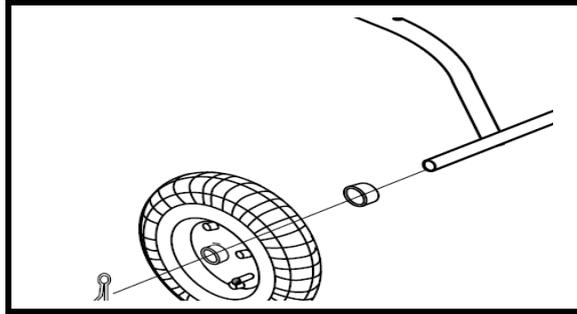


Fig. 5

3. Put the heater on the wheel frame and fasten it with two screws (60 mm) and nuts on each side, picture 6.

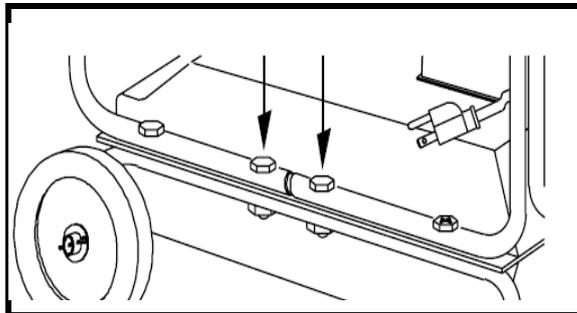


Fig. 6

4. Fasten the front grill with two screws (10 mm) per side, picture 7.

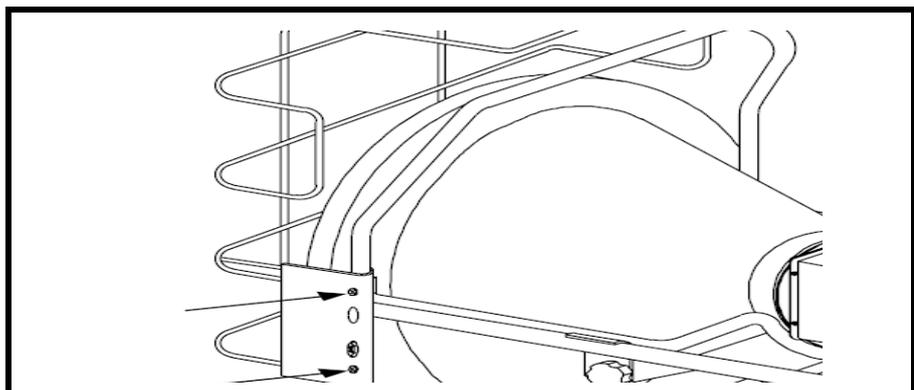


Fig. 7

7. Starting Procedure

Filling of the tank:

For the best performance of the heater we recommend Heating fuel / Diesel or parafin / cerosene.

Never use Bio-Diesel.



Never fill the tank during operation or while it is still hot. This might lead to fire or explosion.

Fill the tank only on a stable, solid surface.

Never overfill the tank.

Never use petrol / gasoline.

Never store heating fuel in the bright sun or near any heating source.

Never use old or long stored heating fuel. The heater will not operate troublefree with old heating fuel.

Ventilation:

Use the heater only in well ventilated areas.

Obey the safety informations.

A special care has to be taken when the heater is used in a humid surrounding.

Disconnect the power supply.

Take care that all electrical components are protected and can not get wet.

The heater should be operated only by trained personel.

Starting of the heater (Ignition)

1. Fill the tank with clean fuel until the needle of the fuel gauge is on „F“ position.
2. Close the tank lid.
3. Connect the heater with an earthed socket.



On initial or repeated start you can possibly hear a metallic noise. This is caused by the fuel pump which pushes air bubbles out of the fuel line.

The heater will start within a few seconds.

If the heater does not start, repeat the procedure and take care that the tank is sufficiently filled. Check this on the fuel gauge.

The electrical components of the heater are protected by a fuse on the control board.

In case the unit does not start at all, check first the fuse and replace it if necessary.

Also check if the unit is connected with a correct socket. Compare with values on the serial plate.

RH 35

1. Complete above three steps.
2. Operating switch (20) on position „ON“. The control light is lightning the heater is igniting.

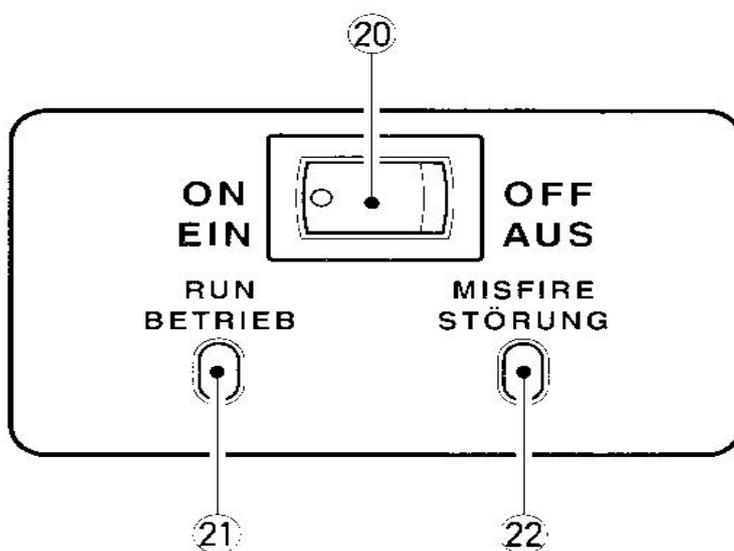


Fig. 10

8. Misfire Resetting

If the heaters RH 35 are on misfire, the operating switch has to be set to position „AUS – OFF“ first for resetting. After the cause of the malfunction has been eliminated you can restart the unit.

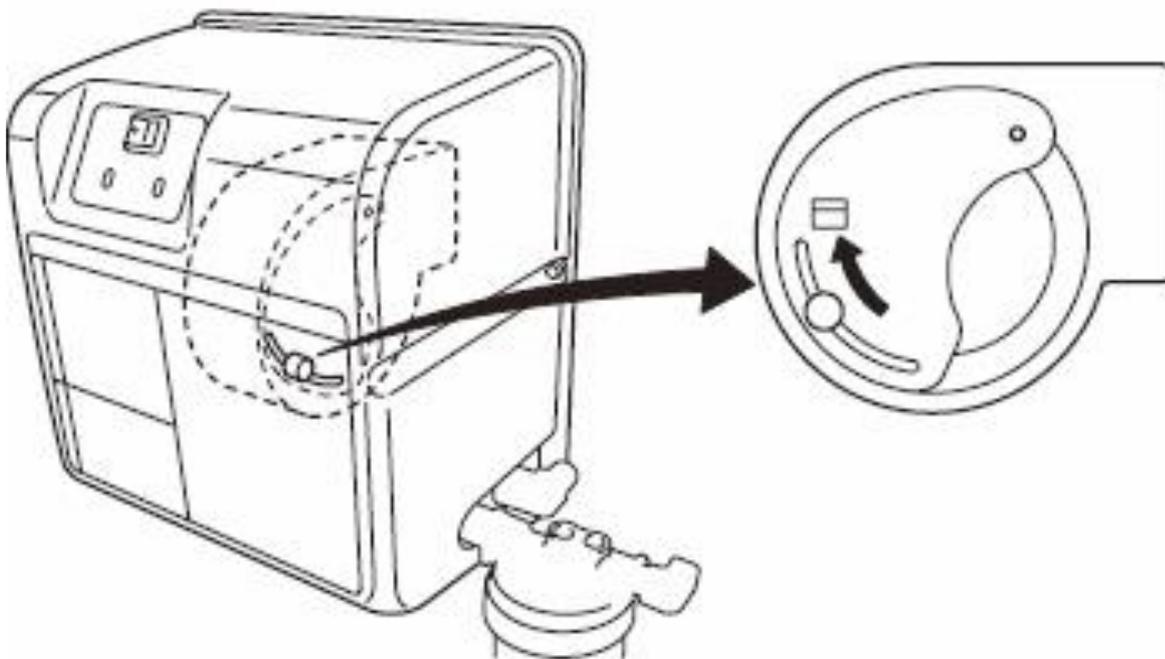
RH 35



Air flap setting

If the air flap is completely open, more than the required air is delivered. This reduces the flame length and the oil/air mixture is in no good relation. More air than required is delivered causing a poor combustion. In the longrun this setting will result in damages of the heater.

You will receive the best combustion if the air flap is closed so far that no flame tips come through the radiation plate.



9. Switching off the heater (cooling phase): RH 35

1. Operating switch on „OFF“-position.
Combustion stops, cooling process begins for approx. 3 min.
2. After the automatic cooling the fan stops and you can pull the plug.

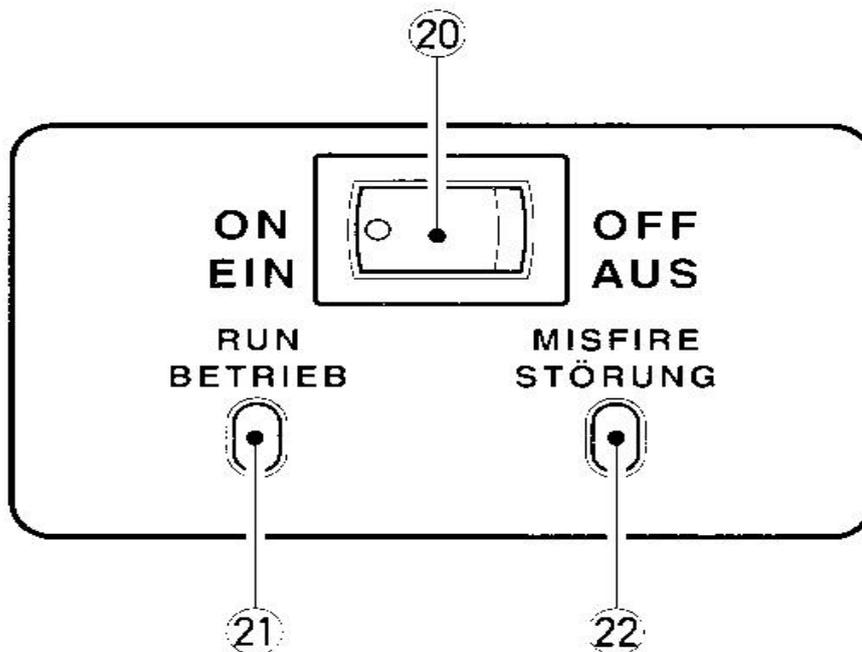
Never pull the plug before the cooling process is finished.



If you pull the plug earlier it can possibly result in heavy overheating and damage of the heater or the radiation plate.

Restart

1. Wait after the automatic cooling, approx. 10 seconds.
2. Then continue according the instructions of the regular start.



10. Maintenance RH 35

Longterm storage:

1. Remove the tank cap and the drain plug (fig. 17) and empty the tank.
2. Clean the tank by using a rest of the heating fuel.
3. Empty the tank completely.

Never mix heating fuel with water, this will result in rust on the inside of the tank.



Never store old heating fuel between the heating periods, old heating fuel is bad for the heater.

Store the heater in a dry – well ventilated surrounding.

Take care that the surrounding is dustfree.

If possible, pack the heater together with the operating manual again in the original packing.

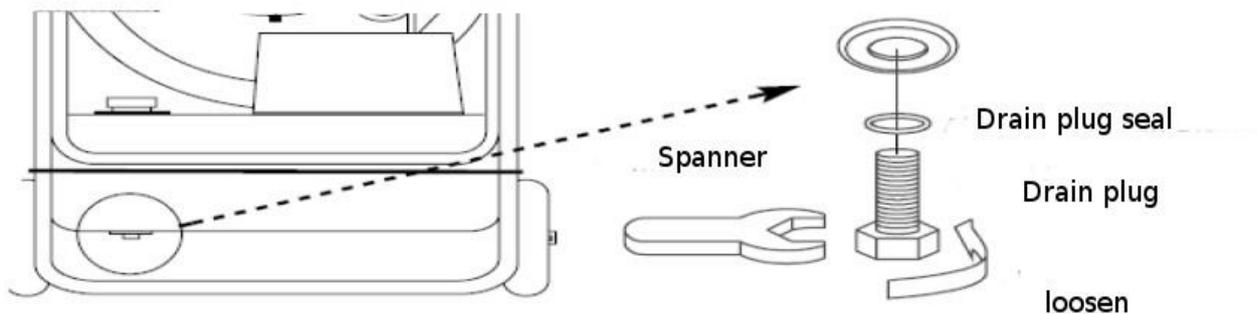


Fig. 17



Service:

Never service the heater while it is still connected with the power supply or it is still hot.

Do not make any changes on the heater.
Check always with a specialist first.

We recommend the following service work:



Tank

Follow the instructions of longterm storage / tank.

Clean the tank every 200 operating hours – resp.
when it is necessary.

Do not use under any circumstance water for cleaning.

Ignition electrode

Clean it every 600 operating hours – resp.
exchange it.

After removing the ignition electrode you can clean this with a wire brush.

Check the electrode distance!

Nozzles

Nozzles should be cleaned once or replaced during the heating period.

Dirty heating fuel can clog the nozzle. In order to clean it, blow air through the nozzle.

In order to loosen dirt particles, put the nozzle into diesel or heating fuel first.

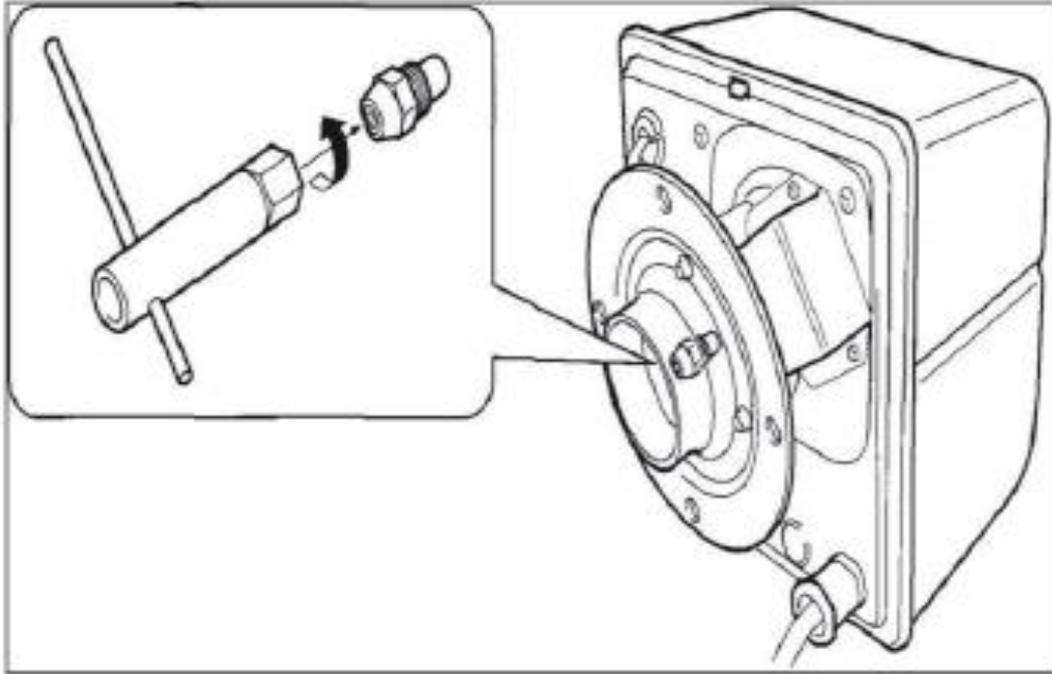


Fig. 19

Photocell

The photocell should be cleaned at least once per heating season. This depends also on the condition of the photocell.

For cleaning use a soft cloth, soak it in water or alcohol and clean the lens of the photocell, Fig. 20.

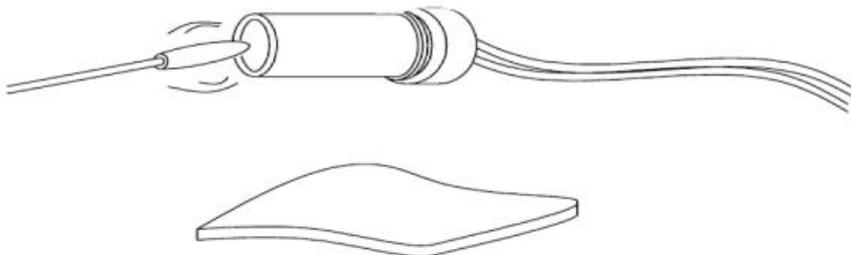


Fig. 20

Take care that the photocell is replaced to the correct position, refer figure 21.

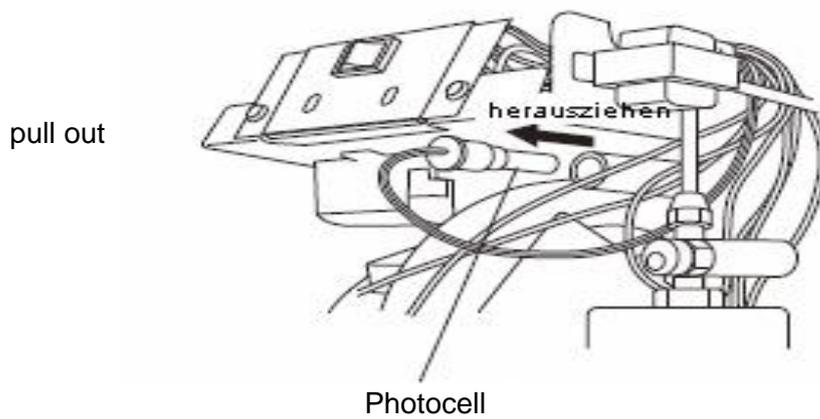


Fig. 21

Filter

The oilfilter should be cleaned at least twice per heating season.

When using dirty fuel an earlier cleaning / replacement may be necessary, refer figure 22.

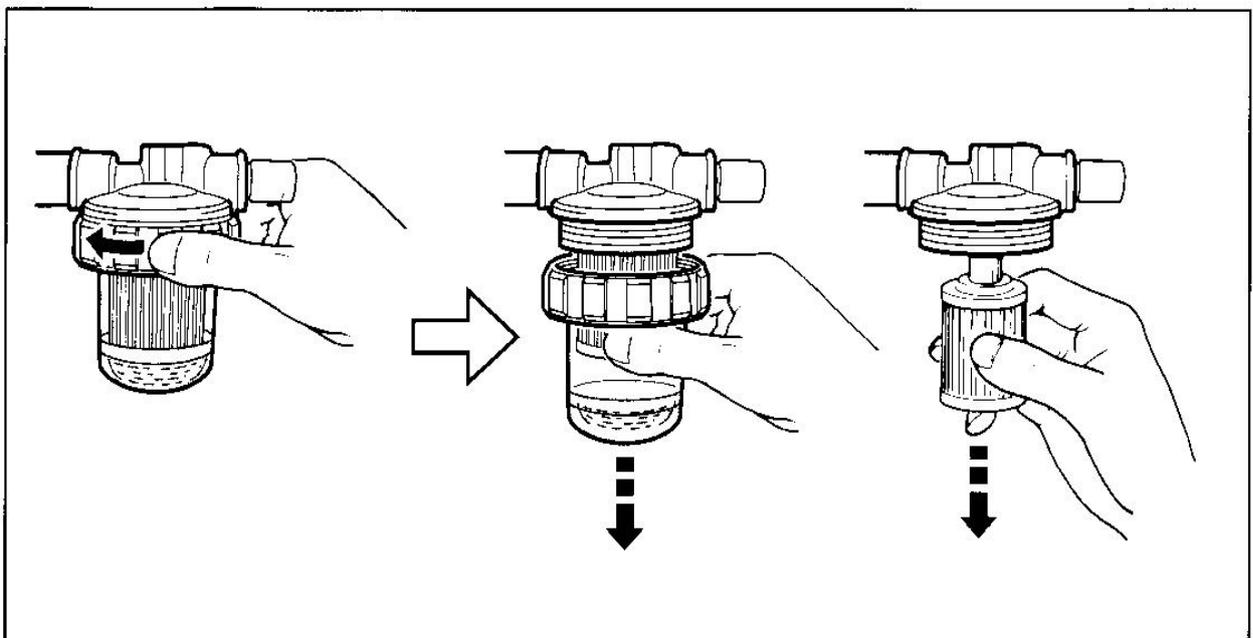
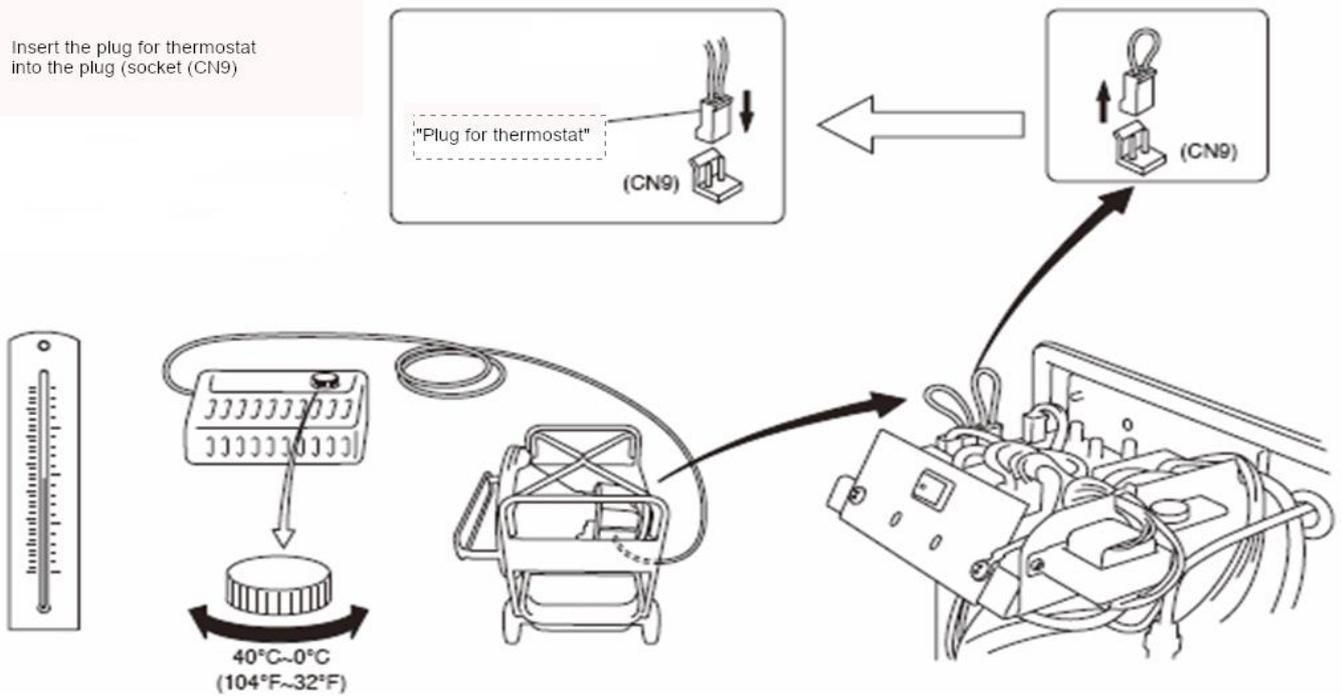


Fig. 22

Automatic temperature control (accessory)

When installing a room thermostat, the earth cable (protective conductor yellow-green) must be connected.

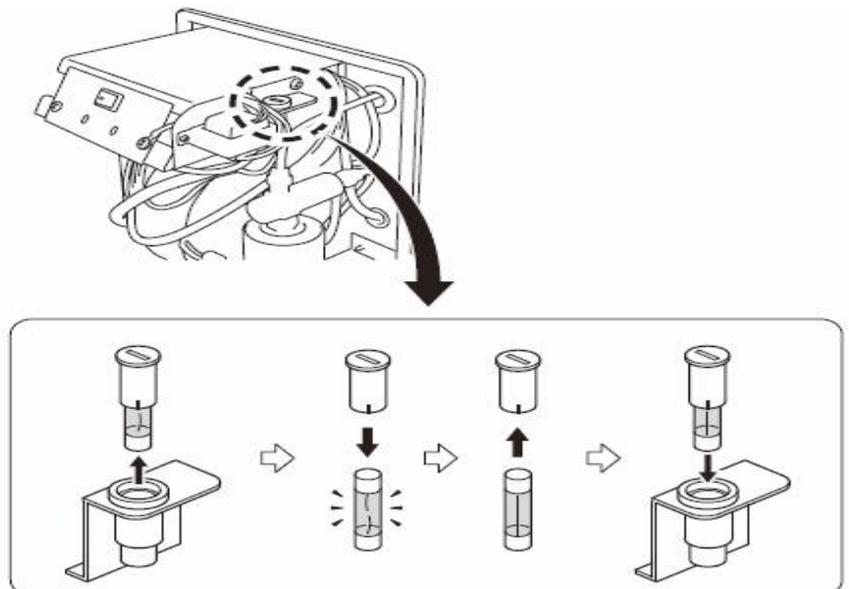
Insert the plug for thermostat into the plug (socket (CN9))



Fuse exchange

Electrical overload causes a defective fuse.

Eliminate the cause and replace the defective fuse by unscrewing the safety cap, inserting a new fuse and screwing the safety cap back in.



11. Possible Malfunctions and Remedies

Malfunction	Cause	Remedy
Fan does not run.	Interruption in the supply line. Defective fuse. Defective contacts.	Check/repair power cord, plug etc. Replace fuse. Check/repair resp. Replace electr. connections and contacts.
Fan runs but heater does not ignite. Radiation plate is insufficiently hot.	Empty tank. Clogged nozzle. Clogged filter Wrong fuel.	Fill tank with heating fuel / Diesel or parafin / cerosene. Replace nozzle. Replace filter element. Change fuel. Use only heating fuel / Diesel or parafin / cerosene.
Heater smokes.	Fan delivers insufficient combustion air. Wrong fuel.	Increase air supply. Control fuel.

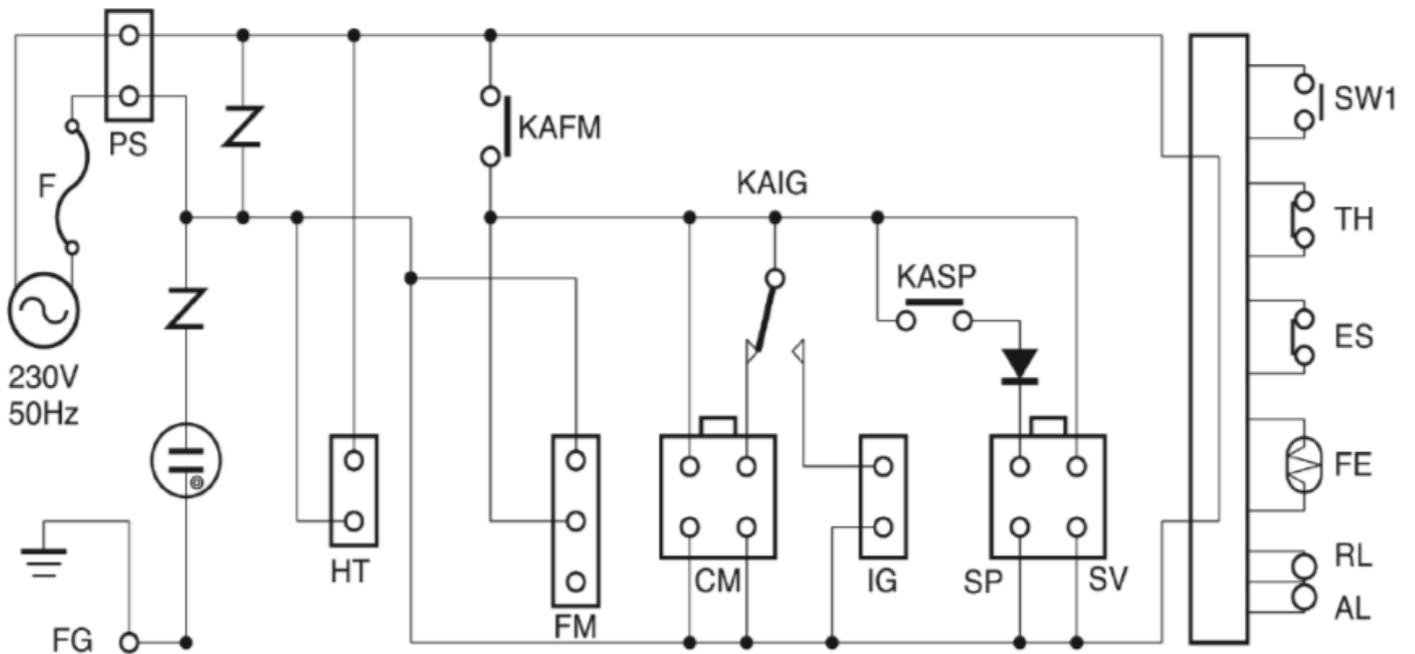
In case of malfunctions that are not covered here, please contact your supplier or the responsible customer service.

12. Wiring Diagram

RH 35

Wiring diagram

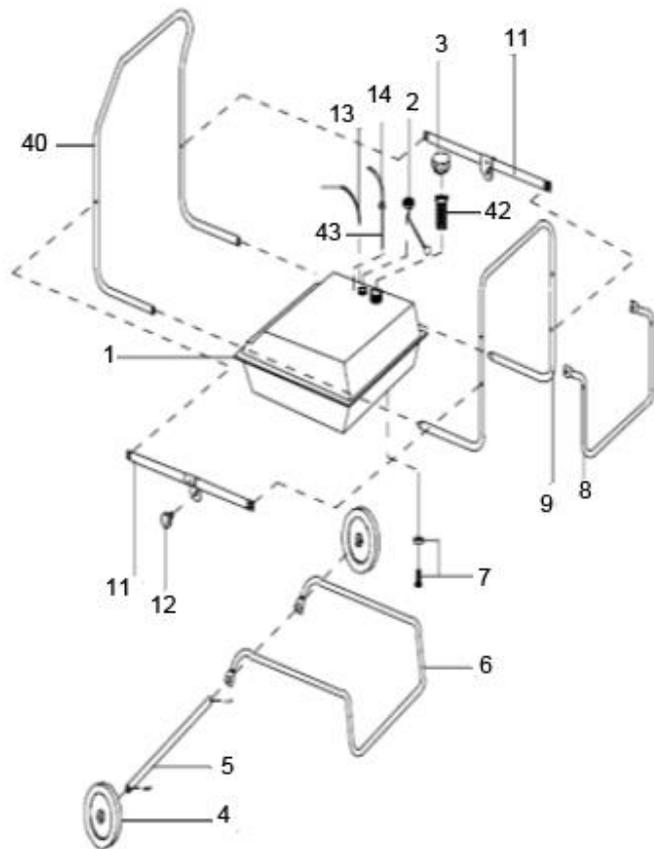
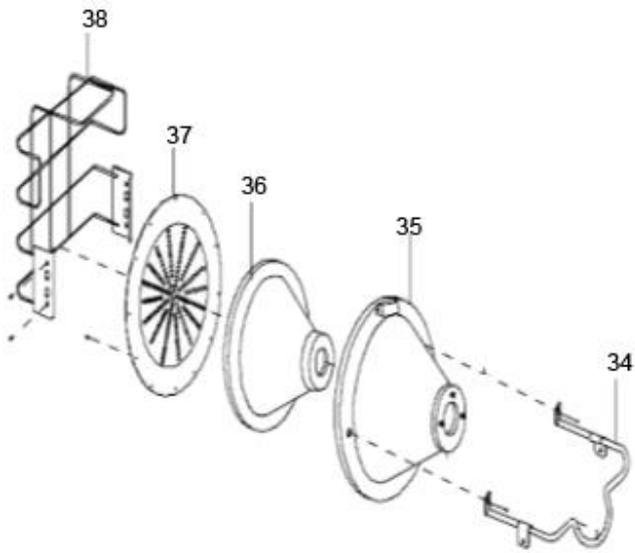
PS	: Power Supply
SW1	: Switch
TH	: Thermostat Bridge
FE	: Photocell
FG	: Housing Earth
HT	: Oil Preheating (optional)
FM	: Burner Motor
CM	: Plug
IG	: Ignition Transformer
SP	: Fuel Pump
SV	: Plug
RL	: Operating Lamp
AL	: Misfire Lamp
KA	: Relay
F	: Fuse
Z	: ZNR
ES	: Bridge



13. Spare Part List RH 35

<u>Pos.</u>	<u>Part.-No.</u>	<u>Description</u>	<u>Quantity</u>
1	8400060	Fuel tank	1
2	8400061	Fuel gauge assembly	1
3	8400062	Tank cap	1
4	8400063	Wheel	1
5	8400064	Axle	1
6	8400065	Wheel frame	1
7	8400066	Drain bolt	1
8	8400067	Transport handle	1
9	8400068	Rear frame	1
11	8400070	Frame support	1
12	8400071	Adjustment knob	1
13	8400077	Fuel line	1
14	8400077	Fuel line	1
34	8400092	Bracket	1
35	8400093	Combustion chamber	1
36	8400094	Ceramic fiber	1
37	8400095	Radiation plate	1
38	8400096	Safety guard	1
40	8400098	Front frame	1
43	8400101	Pipe	1
not shown	8803680	Burner packing	1

Drawing RH 35



Spare Part List Burner RH 35

<u>Pos.</u>	<u>Part.-No.</u>	<u>Description</u>	<u>Quantity</u>
1	8805150	Burner cone	1
2	8805151	Burner flange	1
3	8805152	Diffuser packing	1
4	8805153	Nozzle	1
5	8805154	Whirl vane	1
6	8805155	Electrode cover	1
7	8805156	Electrode	1
8	8805157	Diffuser	1
9	8805152	Nozzle nipple	1
10	8805159	Burner base	1
11	8805160	Flame monitor	1
11a	8803512	Holder photocell	1
12	8805161	Fuel pump	1
13	8803310	Fuel filter complete	1
14	8803311	Filter element	1
14a	8803585	O-Ring	1
15	8803320	Elbow nipple	1
16	8805165	Pump bracket	1
17	8803379	Fuse 1,6A	1
18	8803377	Fuse holder	1
19	8803540	Power cable	1
20	1135038	Strain relief bushing	1
20a	1135040	MS-Nut PG 13,5	1
21	8805167	Fuel outlet line	1
22	8803250	Pump nozzle grommet	1
23	8805168	Fan motor	1
24	8803477	Step down transformer	1
25	8803373	Controler	1
26	8805169	Burner control cover	1
27	8805170	Ignition transformer	1
28A	8803479	Bracket	1
29	8805172	Switch assembly	1
30	8805173	Control support	4
31	8803375	Short circuit cord	2
32	8805174	Face plate	1
33	8805175	Burner cover	1
34	8803710	Air vent valve	1
35	8805176	Return line	1
36	8803730	Return line nipple	1
37	8803216	Nut	1
41	8803514	Isolation caps	2
42	8805183	Switch cover	1
43	8805184	Face plate packing	1
44	8805185	Burner cover packing	1
45	8803660	Rubber cap	2
46	8863700	PHD Nipple	1
47	6904010	Oil preheating device	Special accessories
48	8803371	Display	1
49*	8803767	Plug for pre-heater	1
50*	8803768	Plug for cable	1
51*	8803769	Plug for thermostat	1
*		Not illustrated	

Drawing Burner RH 35

