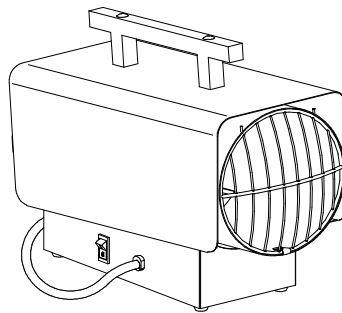




Propane - Heater

REMKO PG 12



Operation
Technology
Spare Parts

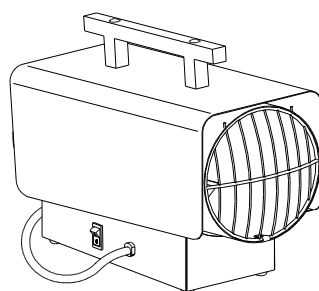
Operating instructions

Make sure to read these instructions carefully before starting/using the unit!

Our guarantee will become void when the unit supplied by us is used and installed for inadequate purposes, or maintained incorrectly, etc., or if it is changed without our prior consent.

Mobile Propane heater

CE



Inhalt	Seite	Inhalt	Seite
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General Hints	5	Technical Data	8
Starting	5–6	Action in Case of Faults	9
Putting out of Service	6	Drawing	10
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 **Always keep these operating instructions near or on the device!** 

Safety Hints

When using this unit make sure always to observe the applicable building and fire protection regulations as well as the rules of the trade cooperative association.

- The unit may be operated only by those persons who have been instructed accordingly.
- The unit is to be installed and operated in such a way as to ensure that the employees are not endangered by waste gases and radiation heat and that no fire can break out.
- The unit may only be installed and operated in rooms, when the air rate fed to the unit is sufficient for combustion.
- Make sure to install mobile liquid gas reservoir on a solid ground and in a vertical position.
- Liquid gas reservoir may never be used in a lying position while the unit is operating (gas leakage in the liquid phase).
- The unit may be operated only in well aerated rooms. Persons may not stay permanently in the room where the unit has been installed. Relevant prohibition signs are to be fastened to the entrances.
- The unit is to be installed and operated on a solid non combustible ground.
- It is to be ensured that no combustible objects/materials can be sucked in.
- The unit may not be installed or operated in inflammable and explosive surroundings.
- A safety zone of 1.5 m around the unit and a minimum distance of 3 m at the unit's exhaust opening are to be observed, even regarding non combustible objects.
- The unit's exhaust opening may not be reduced or equipped with hoses or pipings.
- Make sure not to introduce foreign matters into the unit.
- The air suction lattice is always to be kept free from dirt and loose objects.
- Make sure not to expose the unit to direct water jets.
- All electric cables outside the unit are to be protected from damage (e.g. caused by animals, etc.).
- Make sure to cut off the gas supply and to pull the mains plug out of the mains socket when maintenance and repairs are carried out.
- Safety devices may be neither overbridged nor blocked.

General Hints

- ✧ The unit may be operated only by those persons who have been instructed regarding the unit's operation and the handling of liquid gas.
- ✧ **When using the unit make sure always to observe the guiding principles of the countries and states concerned.**
- ✧ **The unit may only be operated in rooms when**
 - the air rate fed to the unit is sufficient for combustion and
 - the rooms are well ventilated and deventilated and
 - the percentage of the substances which are injurious to health in the breathed in air has no inadmissible concentration.

A good and natural ventilation and deventilation is given if e.g. the room volume in m³ corresponds to at least 30 times the nominal heat load in kW of all the units being operated in the room, and if a natural air exchange through doors and windows is ensured, **or** if there are permanently open ventilation possibilities for ingoing and outgoing air near the ceiling and the floor, of which the size in m² corresponds to at least 0.003 times the nominal heat load in kW of all the units being operated in the room.


- ✧ A uniform unit connection pressure of 0.3 bar (300 mbar) of category I_{3B/P} is necessary for all countries of the European Community.
The connection pressure may not fall below or exceed the required value.
- ✧ Make sure to use exclusively components, such as gas hose, pressure controller and hose security devices (protection against breakage) or safety devices against gas leakage, that have been tested and are suitable for the intended purpose. The pressure controllers must have a firmly regulated initial pressure of 300 mbar and are to be equipped with a security device against hose breakage.
- ✧ Hose pipes are to be protected generally against chemical, thermal and mechanical damage.
- ✧ The persons charged with the operation of the unit have to check it prior to starting work to make sure that there are no visible defects. If there are defects which affect the unit's operational reliability, its operation is to be stopped!
- ✧ The unit may be only maintained by trained persons and only original spare parts may be used.
- ✧ If the unit has been switched off by the temperature limiter due to overheating, the reason for the fault has to be detected and eliminated.

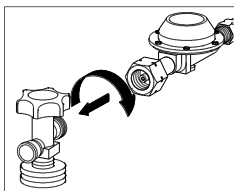
Starting

Make sure to charge a person with the operation of the unit and with the supervision of the reservoirs and of the bottle stock who has been instructed sufficiently regarding the handlings concerned.


The persons charged with the operation of the units have to check the units before starting work to detect obvious defects on the operating and safety elements and to make sure that the safety devices have not been removed.

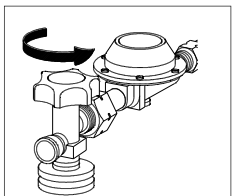
Make sure to draw the operators' attention to possible dangers during the handling of liquid gas.

 **A constant unit connection pressure of 0.3 bar (300 mbar) must be ensured, also during continuous operation.**

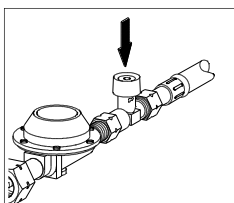


Connect pressure controller to the gas bottle(s).

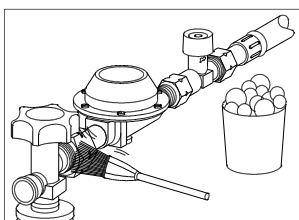
 **Attention!**
left-handed thread!



Open bottle valve(s).
When gas is taken out of several gas bottles simultaneously, all the valves have to be opened.



Press release button of the hose security device (protection against breakage) **after having opened** the valve(s).
This has also to be done after each replacement of bottles.

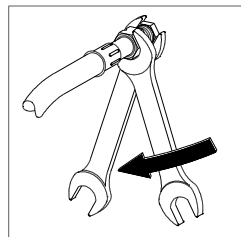


After the installation and connection of the units all the gas bearing connections have to be checked with soap solution, leakage detecting spray etc. to make sure that they are tight.

Do not use open flames!

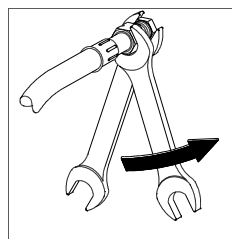
Important Installation Hint

When installing or removing the gas hose make sure to **exert a counterpressure** on the **gas connection nipple** of the unit using an open-end spanner SW 19 and observing the left-handed thread.



1) Unscrew gas hose


Turn union nut clockwise



2) Fasten gas hose

Turn union nut anti-clockwise

This procedure also refers to all further gas components, such as pressure controller, hose security device (protection against breakage), etc.

 **When any work is carried out on the gas supply line and when the gas cylinder is replaced, all stop valves must be closed and there may be no ignition sources in the direct surroundings.**

Hint!

Insufficiently dimensioned supply plants can cause icing of the pressure gas or pressure reservoirs. When the gas pressure falls a proper gas supply to the consumer points can no longer be ensured in many cases.

This will result in imperfect combustion, harmful waste gases or extinction of the flame. Therefore the supply plant is to be dimensioned in such a way as to ensure that problems of this kind cannot be caused.

The crystalline white frost may not be removed by open fire, glowing objects or radiators. Sufficient gas supply to the consumer points can be ensured by using an evaporator.

Sufficient gas supply is to be ensured according to the unit power rating (see identification plate), service life and ambient temperature of the supply tanks.

In principle, we recommend that you use a set of at least 3 cylinders to avoid intensive icing of the reservoirs. The number of cylinders can be increased by using a set of several cylinders (accessories), depending on the unit capacity and the service life.

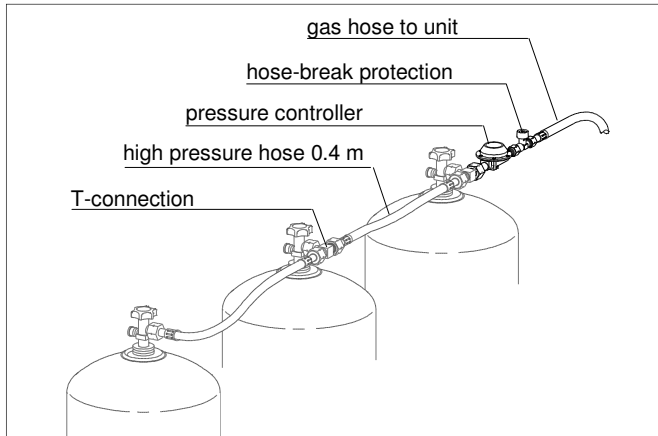


Install only in well ventilated rooms, not in rooms which people will be using for longer periods!



Assembly of Multi-bottle Set

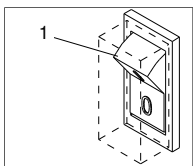
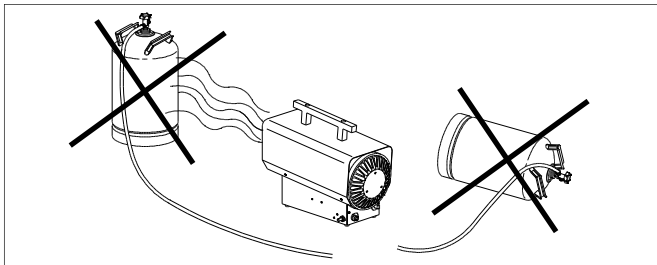
To avoid intensive icing of the gas bottle during a longer operation of the unit, we recommend that you use a bottle battery consisting of at least 3 bottles. All bottle valves must be open to ensure regular gas supply!



Important!

Make sure to place gas reservoir only laterally behind the unit! Never heat up or defrost gas reservoir through the unit's hot air current (**danger of explosion!**).

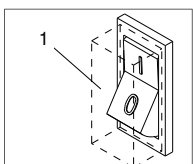
Never use gas reservoir in a lying position when the unit is operating (gas leakage in the liquid phase).



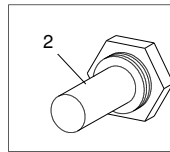
Put the operating switch into position "0" (= Off) and plug the mains into an appropriate mains socket with **fault current safety switch** (230V/1~ 50 Hz).



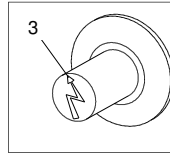
The electric connection of the unit is to be carried out according to the VDE 0100 regulations § 55, via a special supply point with fault current safety switch.



Put the operating switch into "I" position (= heating operation)
The supply air fan starts.



Press down pin (2) of thermoelectric gas valve (safety pilot).



After approx. 2 or 3 sec. the piezo igniter (3) is to be actuated (possibly several times) with the pin (2) still held down, until a formation of flames has occurred.

After the formation of flames still hold down the pin (2) for approx. 10 - 15 seconds, until the thermoelectric flame monitoring has started.

Do not release the pin before this.

If the flame is extinguished after the pin has been released, repeat the ignition procedure after having waited for approx. 1 minute. Then keep the pin pressed down a little longer.

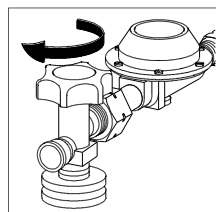
Important Hints!

Make sure that the supply air can be freely sucked and the heated air can be blown off without problems.

The suction and blower apertures of the unit may not be narrowed or equipped with hoses or conduits.

Make sure to keep the safety distance from combustible and inflammable materials and to observe the local fire protection codes.

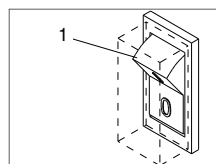
Unit Shut Down



Close all the bottle valves.

Let flame burn out.

The fan should still run for a few seconds to exhaust the accumulated heat.



Put operating switch (1) into "0" position (= off) and unplug mains plug from the mains socket.

Maintenance

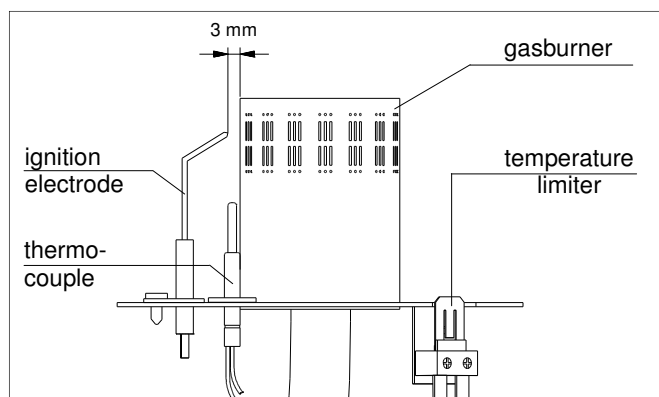
Depending on the operation conditions the units are to be tested by an expert when necessary, but at least regularly every two years, to ensure their safe operation.

The test result is to be recorded in a test certificate which is to be safely kept until the next test so that it can be presented to the authorized persons for control purposes at any time.

If any faults are stated the supervisor is to be informed.

If the faults affect the unit's operational reliability, operation is to be stopped!

- ✧ Regular maintenance and care, at least after each heating period is the basic condition for a long service life and a faultless operation of the unit.
- ✧ Make sure to keep the unit free from dust and other deposits and to clean it only with a dry or humid cloth (do not use water jet).
- ✧ Do not use sharp or solvent-containing cleaning agents.
- ✧ Check suction and blowing out lattice regularly to see whether it is dirty and clean it, when necessary.
- ✧ Check the suction opening for combustion air as well as the injector fitted behind it and the gas nozzle regularly to make sure that they are not dirty.
- ✧ Check gas hoses and sealings to see whether they are damaged and replace when necessary.
- ✧ Clean gas burner and gas nozzle regularly.
- ✧ Clean baffle plate regularly.
- ✧ Check ignition electrode and set when necessary.
- ✧ Check thermocouple and clean when necessary
- ✧ The bi-metal spring may neither be damaged nor bent in or order not to affect the function of the temperature-limiter!

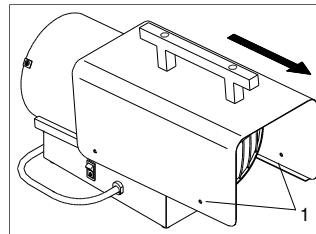


Intensive yellowish flames indicate that the fresh air supply is probably insufficient and that there is some dirt inside the unit, respectively.

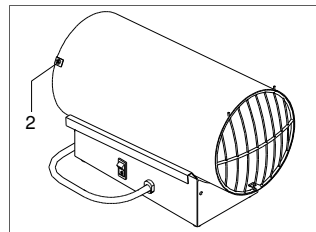
Disassembly for Cleaning

When the unit is being maintained, set or repaired, the gas supply has to be cut off and the mains plug has to be unplugged from the mains socket!

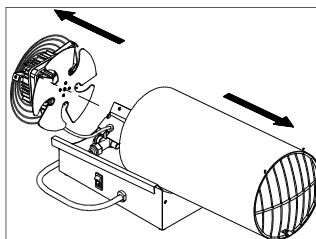
Setting and maintenance work is to be carried out only by authorized specialists!



1. Demount 4 fastening screws (1) and pull off outside casing to the front



2. Demount 3 fastening screws (2) of air suction grille.



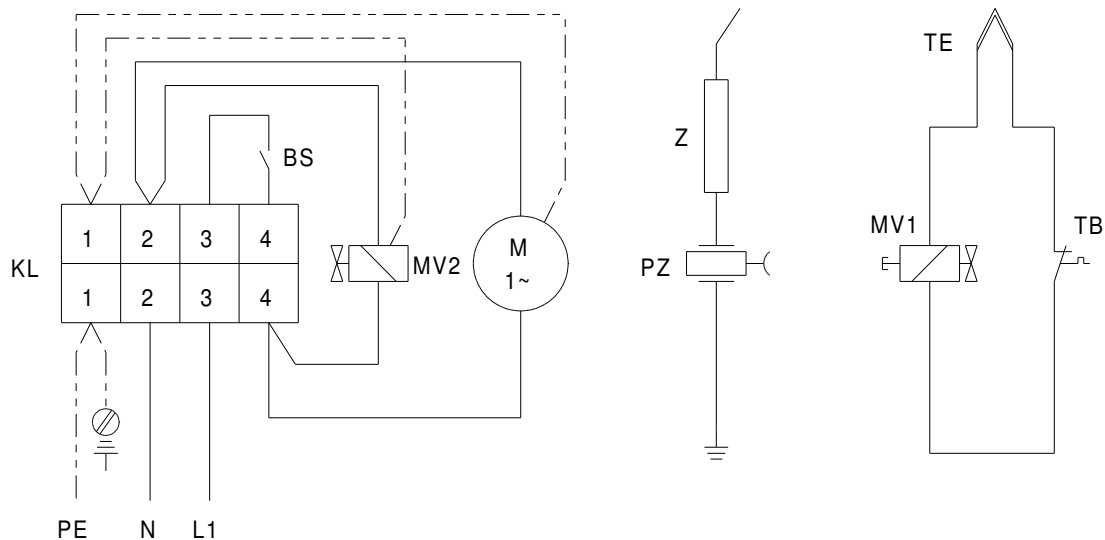
3. Demount air suction grille with fan motor and fan blade and pull inner casing to the front.

Cleaning

After disassembly all components are easily accessible for cleaning and maintenance purposes.

- Clean burner using compressed air.
- Clean gas nozzle carefully when necessary.
- Carefully remove dirt and dust from ignition electrode, thermocouple and temperature limiter.
- Remove deposits and other dirt from base of device.
- Assemble all the parts thoroughly in reverse order.
- **Control the functions of the complete unit and carry out a tightness check for all gas-bearing connections using soap solution and leakage detection spray, respectively.**

Block Diagram



KL – terminal strip
 BS = operating switch
 MV2 = gas valve 2

M = fan motor
 Z = ignition electrode
 PZ = piezo igniter

TE = thermocouple
 MV1 = gas valve (thermoelectric)
 TB = temperature limiter

Technical Data

Series	PG 12		
Nominal heat output	kW	12	
Heating capacity	kW	12	
Air output	m ³ /h	250	
Fuel/type of gas	liquified gas	Cat. I _{3B/P} {AT, BE, CH, DE, DK, FR, IT, LU, NL, NO, SE }	
Gas pressure	mbar	300	
Gas consumption	kg/h	0,95	
Electrical connection	V	230	
Frequency	Hz	50	
Power consumption max.	W	60	
Fuse protection	A	10	
Kind of protection	IP	44	
Sound pressure level L _{pA} 1m ¹⁾	dB(A)	57	
Weight	kg	6,8	
Dimensions total	length	mm	400
	width	mm	185
	height	mm	320

¹⁾ noise measuring DIN 45635-01-KI3 in heating operation


Any operation/handling which does not correspond to that indicated in these instructions is prohibited, otherwise we will not be responsible and the guarantee will become void.

The orderer or the customer must have properly filled out the “**guarantee certificate**” which is enclosed with every REMKO automatic heater and must have returned it to REMKO GmbH & Co. KG within a timely acceptable period based on the sale and commissioning, to be entitled to possible guarantee claims regarding faulty material.

Action in the Case of Faults

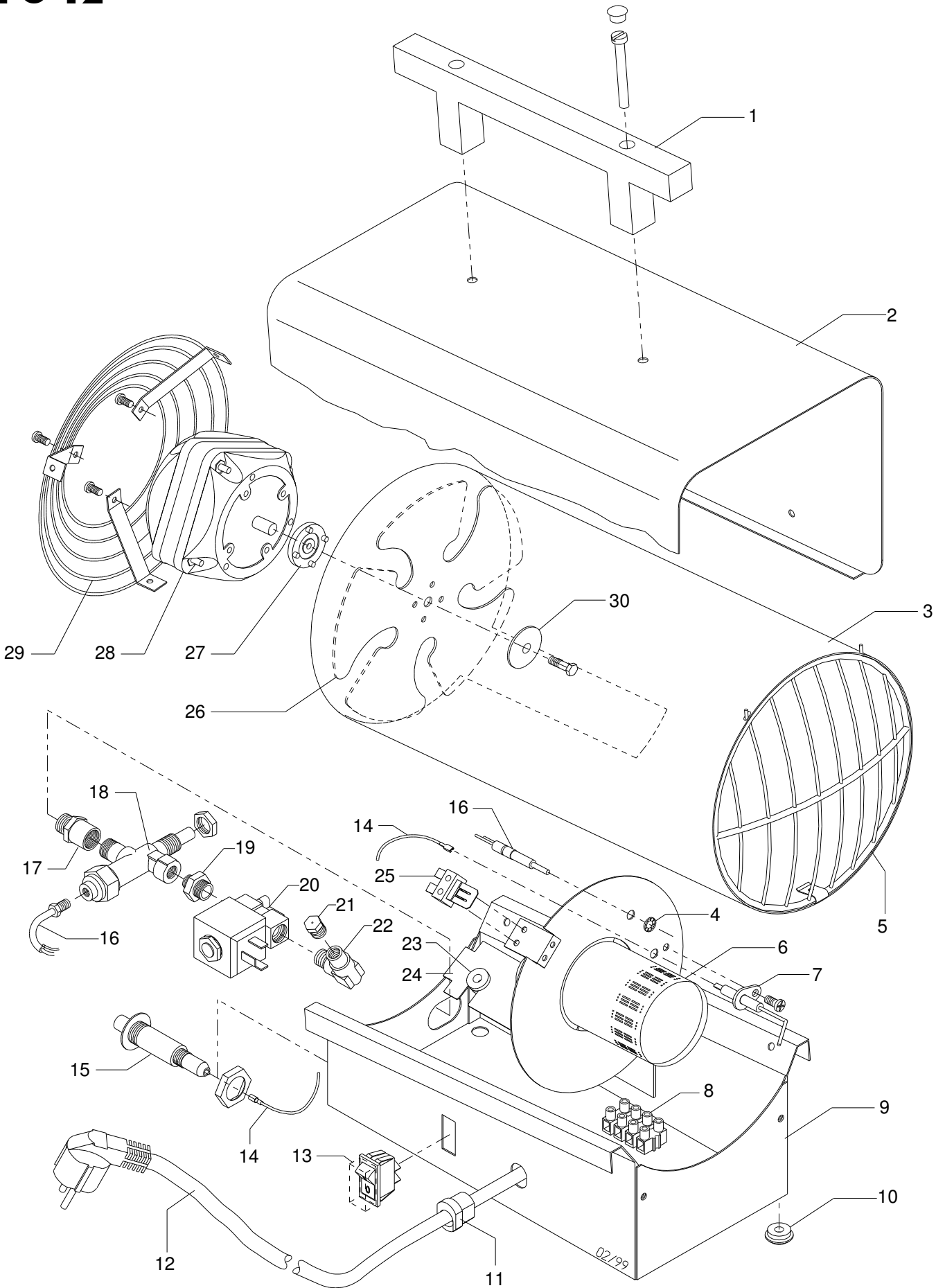
trouble:	cause:
- unit doesn't start	1 - 2 - 3 - 4 - 7
- unit stops during operation	2 - 4 - 7 - 12 - 13
- fan blows, but gas supply is blocked resp. no ignition	4 - 5 - 8 - 9 - 12
- flame goes out after having released the pin of thermoelectric gas valve	8 - 10 - 11
- gas supply is blocked, resp. flame goes out	4 - 6 - 7 - 10 - 11 - 12 - 13
- fuel consumption is too high	12 - 15
- unit can't be shut down	3 - 14
- heating capacity drops during continuous operation	13

cause:	remedy:
1. no electrical connection	- plug the mains into an appropriate mains socket (230V/1~ 50Hz)
2. fan motor is overcharged (fan blows irregularly or is blocked)	- check fan motor, fan blade and clutch plate and replace if necessary.
3. operating switch defect	- close gas supply, unplug the mains and replace defect operating switch
4. no gas pressure on solenoid valve	- check gas supply - check contents of gas cylinders - check gas hose(s) for damage - release hose break protection resp. replace it
5. no ignition spark	- set ignition electrode - check ignition cable - check porcelain insulation of ignition electrode
6. air-suction grille impurified	- clean air-suction grille
7. unit is shut down by safety thermostat (STB)	- check air-suction and blow-out grille and clean if necessary - check fresh air supply - release safety thermostat (STB - Reset)
8. safety pilot does not open (resp. does not lock)	- replace safety pilot
9. piezo igniter defect	- replace piezo igniter
10. thermocouple resp. temperature limiter defect	- check position of thermocouple and adjust according to setting hints
11. loose or impurified connection between safety pilot and thermocouple	- check connection and clean if necessary
12. pressure controller defect or false pressure controller mounted resp. hose break protection is blocked	- mount original pressure controller - release hose break protection resp. replace it
13 gas cylinder(s) iced over due to low temperatures and too high gastaking	- replace empty gas cylinder(s) and connect 2-3 cylinders using multi cylinder set (EDV-No. 1014050)
14. solenoid valve does not open	- close gas supply - let flame burn out - put operating switch in position „0“ and unplug the mains - replace solenoid valve
15. leak gas hose(s)	- find leakage by foam forming mediums eliminate leakage

 **Make sure that the gas supply has been closed and the mains plug has been taken out of the mains socket before carrying out any work regarding the unit!**

Setting and maintenance is to be carried out by authorized experts only!

PG 12



We reserve the right to make modifications in dimensions and construction in the interests of technical progress.

List of spare parts

PG 12

Fig.No.	Description	EDV-Nr.
1	transport handle	1101142
2	outside casing	1103801
3	inside casing	1103802
4	retaining ring	1103811
5	blow out protection grille	1103803
6	Gas burner	1103804
7	ignition electrode	1103818
8	terminal strip, 4er	1101442
9	base	1103805
10	foot rest	1103806
11	traction relief	1103904
12	connecting cable with plug	1103808
13	operating switch	1103809
14	ignition cable	1103810
15	piezo igniter	1101364
16	thermocouple	1103812
17	gas connection nipple	1103813
18	thermoelectric gas valve	1101169
19	reducing nipple	1103829
20	solenoid valve	1101376
21	gas nozzle	1103815
22	angled coupling	1103816
23	protection socket, small	1101304
24	cover plate	1103828
25	temperature limiter	1103817
26	fan blade	1103819
27	clutch plate	1108455
28	fan motor	1103820
29	air suction grille	1103821
30	clutch disk	1101375
o. Abb.	pressure controller with hose-break protection	1103825
	1,5 running metres gas hose	1103826
	2,0 running metres gas hose (HD for building sites)	1103827

**When ordering spare parts it is necessary to indicate
EDV-No. and machine no.(see data plate)!**

REMKO GmbH & Co. KG

Klima- und Wärmetechnik

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